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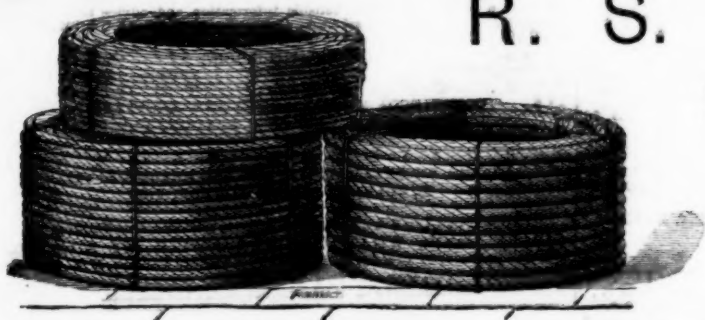
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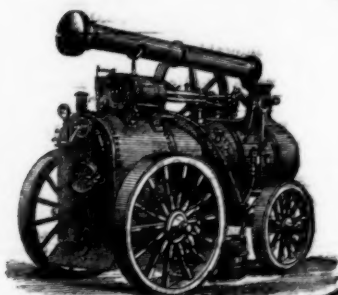
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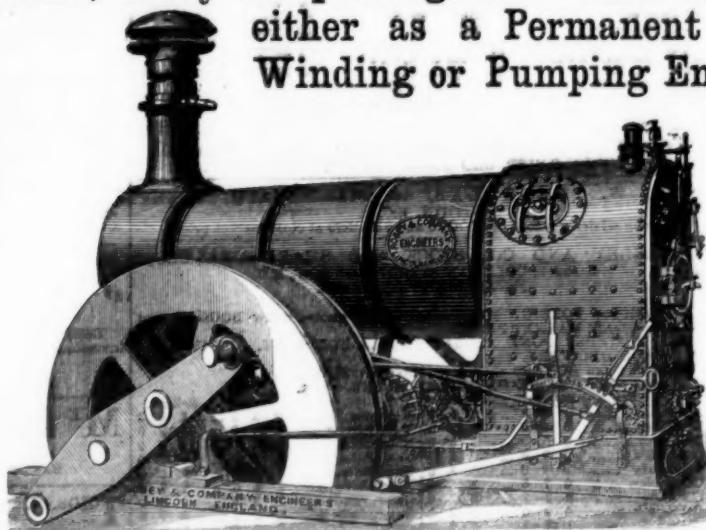
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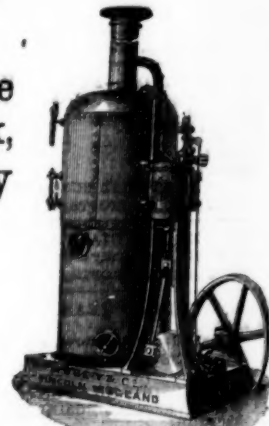
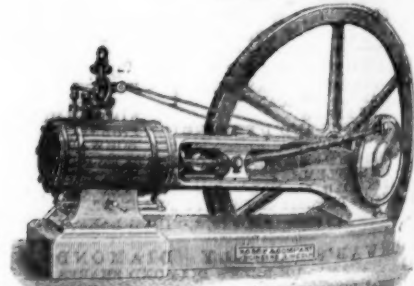
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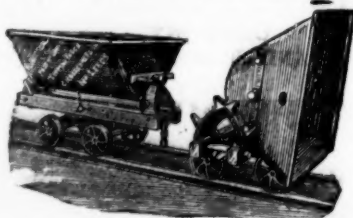
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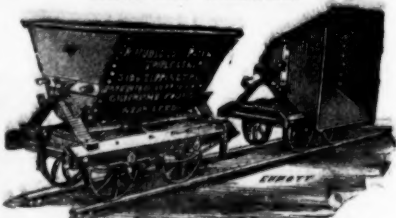
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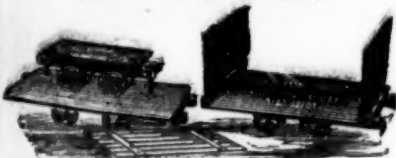
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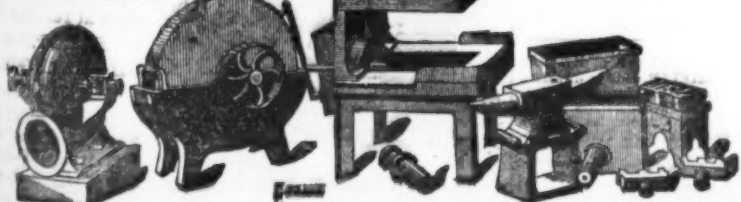
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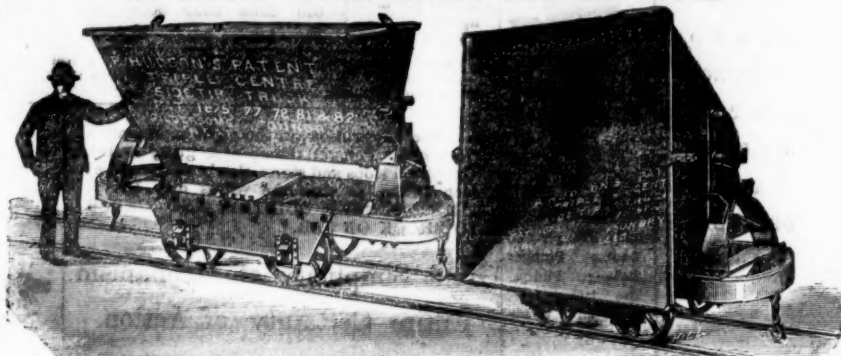
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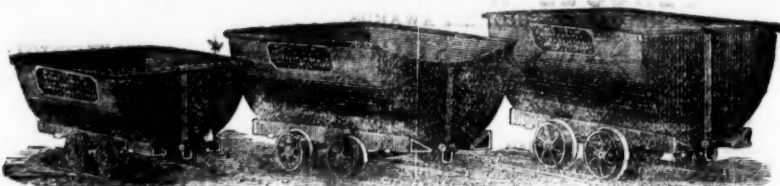


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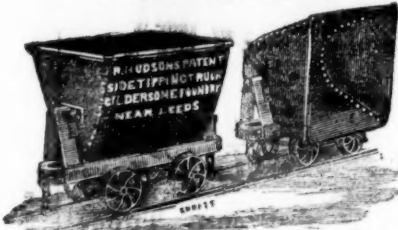


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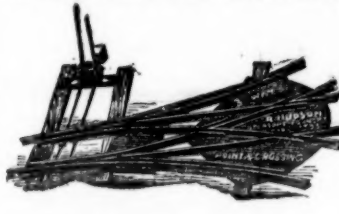
8.—PATENT DOUBLE-CENTRE STEEL
SIDE TIP WAGONS.
Will tip either side of Wagons.



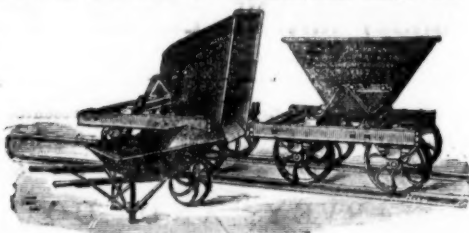
10.—LEFT-HAND STEEL POINT
AND CROSSING.



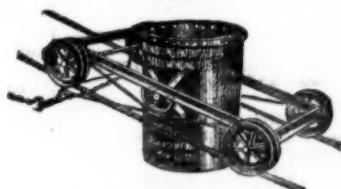
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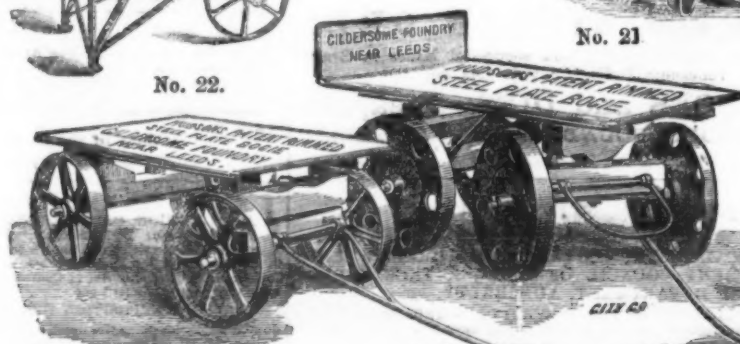


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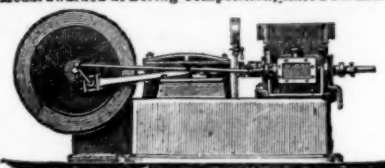
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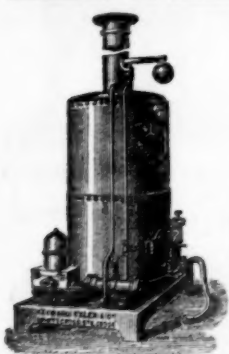
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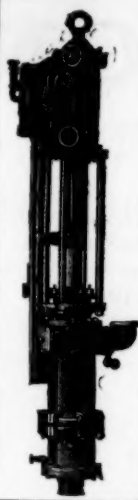
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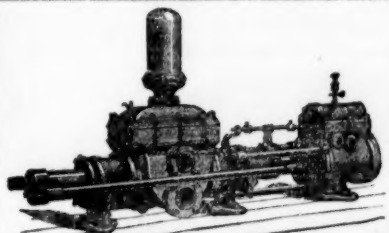
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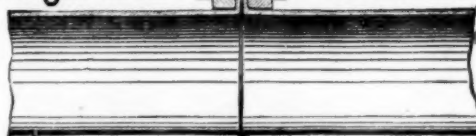
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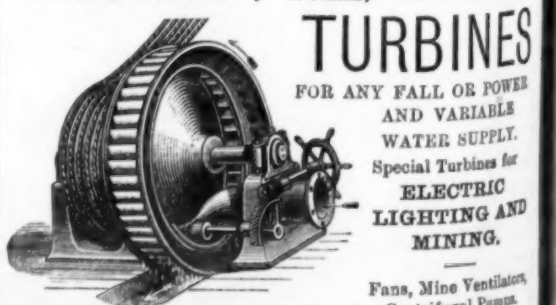
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Original Correspondence.

RATES AND ROYALTIES.

SIR.—An omission of a few words in my letter of last week interferes with its sense. The part alluded to should read—"The reason is because they are empowered to assess only on a fair annual value, or on such a rent as the mine would command if it were in the market. To arrive at the fair rent which a hypothetical tenant would pay is always the knotty point, and with the inevitable conflict of views the owner has generally to be content with only partial relief."

Regarding the point you raise, of paying royalty on the cost of drawing ores, it may be observed that every item of that description (as much as every item in the expenses of mining) would have to be taken into account in an accurate method to be devised for determining the fair rent value of any mine. W. MORGANS.
Bristol, October 27.

SIR.—Will you allow me to say that I consider that this is a question that concerns the working miner as much as the mineowner, for when profits are crippled by heavy rents it is almost hopeless to try for improved wages. I would suggest to Mr. Charles Kneebone that the landlords should be approached for what he calls "a more equitable royalty" for the Bettws-y-Coed Mines before and not after the carrying out of his proposed improvements. Would he kindly inform us what he would consider to be a proper reduction to leave an equitable royalty? A BELIEVER IN "ONE AND ALL."

VENEZUELAN GOLD MINES.

SIR.—Your correspondent, "Verdad," has forcibly illustrated the disasters which have befallen mining investments in Venezuela. It is high time that the honourable industry of mining should be purged of the discreditable associations which have so long corrupted and retarded its growth. How is it to be accomplished? Blood-sucking properties that have swallowed up so many thousands of pounds without yielding any return must have been worse than worthless to the investors who bought them. Can your correspondent say what amount of cash was paid by the investors for any of the white elephant mines in question?—October 26. M. S.

VENEZUELAN GOLD MINES.

SIR.—I observe a statement in your Journal of 24th inst., signed "Verdad," in which he sets forth the insecurity of any investments in mines in Venezuela, as asserted in a recent number of *Truth*. Your correspondent "Verdad" gives a statement of the amount of money hitherto put into what he calls this bottomless pit, and he, at the same time, compares this amount of money with the present value of these investments as indicated at least by the price of the shares of the companies which he names as quoted in your Journal. Will "Verdad" explain why he has not included successful as well as unsuccessful Venezuelan mines among the names he gives? Doubtless he has heard of the El Callao Mine; and although I am not profoundly acquainted with the subject, I do not think I am wrong in stating that this is at least one of the most famous mines as regards returns in any country, and that it still holds its place in the forefront of prosperous mines. In fact, the details of this mine read more like fiction than fact. Again, it occurs to me that "Verdad" makes a mistake as to the Victoria Mine when he states that 200,000*l.* has been spent upon it. I do not happen to have the data at hand, but my impression is that not one-fourth part of that

sum has yet been expended on this recent undertaking. No doubt a considerable number of shares has been handed over (as vendors' shares) in payment of the mine, and these being turned into money have, no doubt, helped to depress their value. Indeed, at this moment the fully-paid *l.* share is purchasable at one-eighth of the price. It may be the duty of the secretary to explain authoritatively what I am now attempting to explain. Comparatively little money has really been spent on the mine, and a good deal of work done remains to explain what has become of the money, which is more than can in numberless cases be shown. I will venture to add that, as regards the *bona fide* character of this Victoria Mine, I cannot believe that a more honest effort ever was put forth on behalf of any gold mine, to certify the statements which have been made as to its extreme richness. This, at any rate, has been done. The shares will probably remain, however, at their present low price until the proposed stamping machines are erected. It is exceedingly difficult to get the public to distinguish between a genuine and a spurious undertaking, and much difficulty has, I know, been experienced in raising subscriptions for the purchase and erection of these machines. It is not without hope than an effort to carry this out is still being prosecuted. Indeed, one shareholder alone who is already interested in the mine to the extent of several thousand pounds, has within the last week or two agreed to subscribe 3000*l.* towards the amount required—15,000*l.*; and I am happy to learn that the sum which he has so fearlessly promised is not the only one.

The Victoria is believed to be as rich in gold as El Callao. When the mines comes to be actually worked, let me hope that it will help in some measure to bring up again to the surface a considerable portion of the money which has been sunk in "Verdad's" "bottomless pit." With reference to the New Chile Company, I shall leave Mr. Hugh Watt, the well-paid managing director, to explain to what use the large returns of gold are being put. Your Journal announces the very large monthly returns of 2775 ozs. for September.

After all is said and done the question may reasonably be asked—"Will even large returns on Venezuela mines admit of the extortionate tariff, and other charges incident to that country?" It may be said in reply that El Callao is a sufficient answer to this. Scarborough, October 26. SHAREHOLDER.

THE VAN MINE.

SIR.—The statement put forward by Messrs. Watson Brothers in the *Mining Journal*, on the 10th instant, and since repeated by them, must have puzzled many of the shareholders, as well as anyone else knowing anything of the real state of this mine, viz.—"The 150 cross-cut at Van Mine will intersect the great lode, which has yielded all the great riches, and which has never been seen below the 120." Captain Williams stated the facts of the case in the *Mining Journal* when he said—"I find by carefully dialling that the Van lode, a lode running south-west, a lode running south-east, with a cross or north and south lode, making a junction of no less than four lodes, accounts for the extraordinary width of the lodes, where cross-cutted and found rich in the bottom of the 120 fathom level." This cross-cut was put through this lode united, for 20 fathoms in width and found to be ore all the distance, the richest part having gone down in the sole or bottom of the 120 throughout the cross-cut. A winze was then sunk from the 120 to the 135 fathom level, all the way in a productive lode, and at the 135 fathom level a cross-cut was put out through these lodes united for 20 fathoms, proving much richer than the one found even in the bottom of the 120. And from the cross-cut a level was continued west for 10 fms. 3 ft., we will suppose on the richest of this body of ore, for it yielded, according to report, fully 3 tons of ore per cubic fathom. The men employed in driving west are now sinking under the 135 fathom level, soon to be down to ventilate and lay open ore ground for

stopping away at the 150 fathom level. Now, if the Van lode was not seen in the cross-cut driven for 20 fathoms through the lode in the 135 fathom level, and under the cross-cut making the discovery of the ore at the 120, perhaps Mr. J. Y. Watson, who is a director, will have the goodness to point out where the Van lode is at that level, the 135. More mysterious things than this I expect will shortly have to be cleared up at the meeting of shareholders, which should soon take place, as it is now more than 12 months since the new company started.—October 27. MINER.

THE LEAD MINES OF CARDIGANSHIRE.

SIR.—After such a stagnation in mining, lasting for some years, in this county, such as has not been felt for 50 years, it affords me a great amount of pleasure to find there are substantial parties moving. Some of the best mines in Cardiganshire, amongst which I may mention the Tynwydd and Moel Glomen Mines, being started with a capital of 7000*l.*, and which is quite adequate for the purpose of bringing them into a lasting state of prosperity, for in this instance ore ground has already been laid open that will pay, even at the present price of lead, and a few hundred pounds will be sufficient to prove the junction of the Great Hafan lode with these orebodies already discovered, and where the greatest and the richest course of ore will, no doubt, be found that has been developed here for very many years. If you will kindly insert this short notice, in the interest of lead mines and mining in this county, you will much oblige.—Aberystwith, October 26. MINER.

DELUSIVE SHARE QUOTATIONS.

SIR.—My case is even more pointed than that of your correspondent, "Amand." I saw in your issue of 17th inst. an advertisement that a certain stock and share broker "can sell the following shares, free of commission—60 Hoover Hills, 7*s.*" By 10-30 A.M. on the day of publication I called at the office of this gentleman, and offered to purchase the shares on the terms named, but was coolly informed that as the market had gone up since he sent off the advertisement he would not sell at the price.

If advertising brokers are not bound to complete a bargain when their offer is accepted and the shares are still unsold the sooner this is known by the outside public the better. INVESTOR.

A MYSTERIOUS DIRECTORATE.

SIR.—A few weeks ago you were kind enough to insert a letter from me on the subject of the Anglo-Mexican Mining Company, since which the directors have given no sign of convening a meeting or issuing a report, or even of having, as far as I know, their accounts audited, although the company has been in existence nearly two years, but continue to degrade themselves by setting not only their own law, but the law of the land and public opinion at defiance.

About a fortnight since I again wrote to the Chairman, Mr. Hopkins, requesting him to be kind enough to inform me if the directors intended to convene a meeting, and, if so, when? but he refuses to make any statement on the subject. I also stated that through his influence, no doubt unwittingly, I was afraid a worthless property had been foisted upon the company by his American friends, for in no other way could I account for the extraordinary and ominous silence of the directors. Whether Mr. Hopkins acted gratuitously in the matter I do not know, nor suppose ever shall know, but I fear the conduct of this directorate will tend to shake the confidence of many people in joint-stock companies.

I trust you will be kind enough to give this letter an insertion in the *Mining Journal*. EDWARD DEARLE
Camberwell Grove, October 29.

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PRESIDENT—The Marquis of LOTHIAN, K.T.

The Earl of ABERDEEN.

The Earl of ROSEBERRY.

The Lord Provost of EDINBURGH.

The Lord Provost of GLASGOW.

ALL APPLICATIONS for SPACE must be lodged with the Secretary, JAMES MARCHEBANK, S.S.C. 29, Hanover-street, Edinburgh, before 1st JANUARY, 1886.

CLASS I. comprises MINERALS of all kinds, MINING, QUARRYING, and METALLURGY, and the APPLIANCES connected therewith.

SIR THEODORE MARTIN'S MANIFESTO.

SIR,—I have read Sir Theodore Martin's speech upon lead mining; but I think he has ignored a very important part of the case. Who dare interfere to prevent consumers buying in the cheapest market?
Dunfermline, October 28. K. MATHIESON, Jun.

MINING STARS: A REFLECTION.

SIR,—Do you know the Cornish adage—"A good bal makes a good captain?" or, do you not rather know the contrary—i.e., that the general belief is that the prosperity of a mine depends solely upon the abilities of the manager that by him it is made or marred; that all its wealth, all its riches, are created by his skill and sagacity? Whether you know it or not, such is the general notion, and even that of my Cornish compatriots, who, although born and bred amidst the mines, and should, therefore, be, as it were, miners by nature, are weak enough to be led away by the same delusion. During the period of riches, I say, all the prosperity is attributed to the skill and sagacity of the manager, but should it unfortunately happen in the precarious nature of mining that the riches fail, and the mine becomes poor, notwithstanding all the eulogies that may have been lavished upon him in the past, and in spite of his abilities as a thoroughly practised, experienced miner, and of all his zeal, industry, perseverance, and integrity, woe to that same unfortunate, that unhappy manager. He is cast out as unsavoury, and is trodden under foot of men. He has become a thing of naught, and is nobody. The abilities and worth of the manager of a mine are measured and estimated by the number of tons of ore that he sends into the market; he is either appreciated or despised in accordance with the amount of the dividends arising from the sales and divided amongst the shareholders; and the manager, be he broomstick or the first miner in Cornwall, if he be fortunate enough to have a good "bal," it is all the same; he is a nonesuch! In the rich copper period of South Wheal Frances I held several shares there, when the late Mr. Thomas Nicol, of Redruth, at an account meeting, said to the manager, Capt. William Pascoe, "I am requested by an absent shareholder to ask what time you devote to the inspection of other mines?" Capt. Pascoe replied by saying—"Certain it is that I am occasionally called upon to inspect other mines; but I never enter a strange mine but I see and learn something that I had never before seen or learned," and so on. I then said, "Mr. Nicol, pray do not too closely push that question, for you may rest assured that whilst Capt. Pascoe is called upon to visit other mines, he will do his utmost to sustain the prestige, the reputation, and the riches of South Frances, and consequently our dividends, being aware that, as soon as South Frances becomes poor he will become obscure. No one will ever after require him to inspect a mine." South Frances did become poor, and Capt. Pascoe dropped into obscurity and oblivion. Capt. James Pope, the late manager of Wheal Basset, who, as a miner, was probably second to no one in the county during the rich state of the mine was held in high esteem both by his employers and others, and was frequently employed to inspect and report upon mines in different parts of Cornwall, and also abroad; but by-and-by, Wheal Basset happening to become poor, Captain Pope was shelved, his services at Wheal Basset and elsewhere were no longer required. He, too, was cast out. That bright and dazzling luminary—and, no doubt, good miner—the late great Captain John Davey, was manager of the United Mines and of Wheal Buller, and was held up as unequalled, during the rich days of these mines; but Capt. John, unfortunately, lost his glasses, and United began to fail, and Wheal Buller to betoken signs of declension, but was still hopeful, for on Capt. John's health being drunk, at an account meeting, in connection with that of the mine, he responded by saying, "Thank e, gen'lmen, I hope we shall have a little improvement for the better, and that it will last for all future time to come." But Capt. John's hope was not realised, both the mines soon became defunct, as also did Capt. John. Another great star went out. Even Capt. "Joe" Vivian's name and fame fell away, with the falling away of North Croker and North Crofty. How ephemeral, how uncertain, transitory, and fleeting are all earthly things. Capt. Nicholas Vivian, the late manager of Condurrow, stood deservedly high in the estimation of all who knew him, as well as in that of the owners of Condurrow, during the period of the riches of the mine; but Condurrow became poor, Capt. Nicholas was ousted, and a man who was never a miner in his life installed to manage in his place, a further proof of the instability of earthly things. Some years ago, I myself was asked to go into the East of Cornwall, near Callington, to inspect a copper mine called Kelly Bray. I went underground, accompanied by the manager, whose name was Silas James. In going down through the backs, passing spacious hollows and excavations, whence it was evident that an immense quantity of ore had been extracted, I said: "Why, Capt. James, you must have had a fine mine here at one time." "Yes," he said, "we had, and at that time I was deluged with letters from A, B, and C all the world and his wife, each and everyone entreating me to go and inspect his mine, and to hand him my report on it; and that if I could not possibly go, would I kindly favour him with my opinion. But since our mine has been poor I get no letters; no one wants me to inspect nor to give my opinion. Whilst the mine was flourishing I used to receive letters from the owners, written in the most pleasant and eulogistic terms, but now, if ever I get a letter at all, it is full of unpleasantness, of grumbling, and complaints." Captain James, however, fared better than many of his compeers had fared under similar circumstances. He was not turned away even for the sin of allowing the mine to become poor, but only put back in the scale—made second instead of first, with a manager placed over him. This I was told, but Kelly Bray was never after of any worth. But notwithstanding that so many great stars have gone out, we have the pleasing fact that our county is not left in the dark, but that there are yet left two luminaries to lighten it—may they continue to shine—the genius of Dolcoath, and that of East Pool. The man that can return 200 tons of tin per month from one mine—which, *en passant*, was rich almost before he was born—and manage half-a-dozen others, must have the wisdom of a Solomon and the strength of a Hercules. The magic wand, however, does not appear to have had effect but at Dolcoath. May the prosperity of the above-named mines continue; but should the wand be lost, and the consequent reverse take place, the two genius Loci must submit to the fate of those great stars which have already gone out.

Carn Brea and Tincroft.—In the sunshiny days of these mines the manager, according to the accounts given us in the newspapers, was more than a Delphic oracle, and as an oracle he was appealed to and consulted upon every subject, particularly that of the tin market, past, present, and future. His word was law, and his opinion taken as infallible. When he spoke the young sun leered and "the aged stood up." Like the dream of Joseph, sun, moon, and the 11 stars made obeisance to him. At Penstruthal it was hoped and expected that his magical, his alchemical wand would transmute the sterile rock into gold; but there the oracle was, by some unknown, some unfortunate means, not propitious. Without wishing to detract one iota from the reputation of this gentleman, I have no reason to believe that, with all his greatness, and all that has been attached to him, all the eulogies and all the flatteries that have been lavished upon him, he is not fallible. His mines became comparatively unproductive, they come under a cloud, and, like Samson under the hands of Delilah, he was "shorn of his strength, and became weak like other men;" his satellites ceased to revolve round him; his flatterers ceased to flatter; no more consultations held; no longer his opinion solicited; and the great luminary is overcast by a cloud. May his mines soon resume their former rich condition, and he his former lustre. Whether these luminaries be shining in mid-day splendour, or whether they be under a cloud, they have had abundant proof that with impunity they cannot be guilty of the sin of allowing their mine to become poor, nay, that it is at their peril if they do so; and their sycophants, the satellites who revolve round them and pay court to them, know, as well as they, that their day is only during the riches of the mine. All earthly things are uncertain, evanescent, and fleeting. Be not high-minded but fear.

October 29.

CORNUBIA.

ILLICIT DIAMOND BUYERS.

SIR,—It will be in the recollection of those who have read the various articles which I have written for the Journal on the Gold and Diamond Mines of South Africa that I have lost no opportunity to attack the abominable "Diamond Thieves' Organisation of Kimberley." For this I have been attacked in the most diabolical manner by the whole of the South African Press. Burning in effigy I consider an honour, as they did the same to the Cape Premier and Mr. Gladstone, so that I am in good company. However, I have reason to believe that those articles of mine are already bearing fruit, and that the inner circle is being reached. To show the public how the South Africans are coming round to my views I enclose a clipping from a Kimberley paper, which has been more violent and unwarrantable against me than any other. The information it contains I supplied in an article to the Journal more than three months ago.

THOMAS COLLINGWOOD KITTO.

Lulworth House, Gunnersbury.

Although so long a time has elapsed since the murder of a trap boy, the immediate result of which was failure to convict certain I.D.B. criminals, the enquiry is still going on, and possibly by next sessions the trial of one or more of the gang of conspirators may take place. The case was one in which the trap boy was decoyed into an I.D.B. resort on the south side of Kimberley, and taken by cart to a spot on the north side, where he was thrown into a well. The discovery of the body some time since caused a great sensation in the camp, and it is hoped that the murderers may be brought to justice. Assaults on police constables and on European and native agents of the Detective Department continue to adorn our criminal record, and it is supposed that the late William Phillips was mistaken for an individual who had given information, as he was a most inoffensive man. He was cruelly murdered whilst proceeding to his home at night, but as yet there is only a surmise as to the perpetrators of the horrible deed. The result of the Boshof trials has given rise to the conviction that there has been miscarriage of justice. It is sometimes seen that "the jug which goes often to the well gets broken at last," but there are exceptions to the rule, for there are a great many I.D.B. jugs not yet broken, although they may be badly cracked as to reputation. But time's whirligig brings with it revenges, and it is still moving on. The magistrates are the most heavily worked men on the fields, and the gaols contain more prisoners in number than the population of most colonial towns total.

—The Diamond Fields Advertiser, 3rd October.

FOREIGN COMPETITION.

SIR,—The observations of Mr. A. K. Barnett on the speech of Mr. Clarke, M.P., at Penzance, are open to remark. The importation of foreign mineral into this heavily-taxed country duty free may be profitable to the smelter; but what is the effect produced on the important industry of home mining? Every nation in the world, with the exception of England, acts on the principle of protecting its own industry and labour. The imports of copper, duty free, in the year 1884 are given as 112,500 tons. The question arises, can home mining live in face of this vast influx, a great portion of it raised by foreign miners at 1s. 2d. per day? As a matter of fact, at this moment copper mining in England is unable to stand against this tremendous rush, and the same calamity is fast overtaking the lead mines of England and Wales. Sir Theodore Martin, K.C.B., in the powerful speech reported in the *Mining Journal* of last week, observes that 179 lead mines were shut up, throwing out of employment altogether nearly 40,000 able-bodied miners with their distressed families, representing 120,000 souls, "deprived of their food, their housing, and their clothing." The merchants and tradesmen at the same time suffering immense losses from the stopping of this great branch of national industry. In face of this lamentable disaster, and with the same kind of misfortune befalling almost every other branch of enterprise throughout the land, we are told that not even an enquiry is needed. The labourers of England and Wales are not of this opinion, and they are now electors. This will be abundantly manifested at the forthcoming election, and on the great national question of Fair Trade that election will mainly turn.

ONE OF THE PEOPLE.

Calstock, Cornwall, October 28.

THE EMPLOYMENT OF WOMEN AT PIT MOUTHS.

SIR,—Two years ago a large landowner in Northumberland remarked to me that the wages of women workers in the fields in this county had doubled during the last 20 years. This, he said, was an increase which he could not explain on any commercial principle. In every other branch of labour in which wages had risen permanently there had been a corresponding increase in the efficiency of the labourers; but in this case there had been no increase in efficiency. The explanation is that better notions of the position and duties of women are spreading among the labouring classes of the county, and the result is a falling off in the supply of women labour. Women workers in or about the pits are now unknown in Northumberland and Durham, and it would take quite a revolution to reintroduce such a system into these two counties. The better portion of the labouring classes regard female labour in or about the mines, in brickyards, and in fields as degrading, and as having a tendency to destroy the better instincts of women. The fact is becoming more and more recognised and acted on that women who perform hard manual labour do not make the best of wives and mothers. The delicacy and affection which constitute the charm of women are invariably destroyed by the performance of hard manual labour. Respectable service, teaching, dress-making and counter-work are the vocations to which the daughters of the miners are generally put. I have seen women at work at the pit mouths in Scotland, and I was well acquainted with several old women who had spent the greater part of their lives in working at the pit mouths, and one of whom had actually hewed coals in the mine. There was about these women a roughness (one might almost say a brutality) which could only be accounted for by the fact that they had performed so much hard manual labour. Anyone who believes in the employment of women at pit mouths should visit a pit mouth where women are employed on a warm summer day as the day's work is drawing to a close. The sight of men and women moving about at top speed, and straining every muscle to the utmost, is brutalising.

This exertion, coupled with the sun's heat, renders the ordinary articles of clothing an encumbrance. Without carrying the picture farther into unpleasant details, we may ask how these women could have pure thoughts, and how they could be capable of the affection which makes good wives and mothers. What man who loved his daughter would not sacrifice his very life rather than see her follow such employment? And what man who wishes to raise woman, and through her the whole race, would argue that women ought to follow such employment? I have observed in many instances in which one daughter in a family was engaged in hard manual labour. In the home in the evening, there was a fine opportunity of ascertaining the effects of this hard labour, comparing that daughter with her sisters, and in every case the girl who worked at the pit mouth, or in the brickyard, or even in the fields, is rougher in actions, less pure in thought, and weaker in her affections than her sisters who do not follow hard manual employment. And the inference that the girls who do not work hard with their hands make the better wives and mothers is verified by actual results. I have no statistics on the point, but I firmly believe that the children of women who work so hard are less healthy, and they are certainly less cared for than the children of women who do not work so hard. I should think a considerable proportion of the children of women who work hard with their hands die in infancy.

There are fields in which women can work with advantage to herself and the race; such, for instance, in the field of medicine and nursing. Those who are anxious to improve the condition of women might use their efforts to assist in breaking down the prejudices which keep women out of this and kindred fields.

S. NEIL.

Seaton Delaval.

TRAMWAYS.—The closing prices of this evening, as quoted by Mr. Wm. Abbott, of Tokenhouse-yard, are given in tabular form in the stock and share list page of the Journal.

SHOT-FIRING IN COAL MINES.

SIR,—The *Times* writes: "The use of gunpowder in coal mines has been and is the fruitful source of so many and fatal accidents that its compulsory discontinuance amounts almost to an imperative necessity. But the prohibition of the use of explosives would render the working of many of our coal mines so unremunerative that it would be impossible to keep them open, the pits would have to be closed and the hands discharged, the supply of coal would be lessened, the price would be increased, and our great iron and cotton industries would suffer to an extent disagreeable to contemplate."

The majority of accidents from shot-firing in collieries is due to the want of a safety system of blasting whereby the use of explosives can be made harmless in fiery collieries, and prevent premature explosion and "blown out" shots during blasting operations in any kind of mining or quarrying. So momentous is the question of shot-firing in collieries, that it has become a subject for Government legislation. Pending the sittings of the Royal Commission on Accidents in Mines, appointed some years since, and which has now almost passed out of memory, but which is now about to send in its report, the process of the hydraulic cartridge and liquid combination has been tried in numerous collieries both in South Wales and the North of England with the most successful result, particulars of which have been communicated to individual members of the Royal Commission, and also to Mr. Ellis-Lever who claims the reputation of being the friend of the miner. In neither instance have the parties working out these experiments during a period of two years past, and at a cost of some thousands of pounds, been favoured even with a reply to their communications although the Royal Commission has been challenged by them to test their system, and if found efficient to give sanction and authority for its general application, and thereby establish an object of such great national importance. They have also claimed from Mr. Ellis-Lever the munificent sum of 500l. which he has offered for the best substitution for a safe system of shot-firing. It is right that the public should know the apathy that has been shown in this matter by the authorities whose duty ought to have led them, at least, to investigate the matter; and even now at this present juncture it ought not to be too late to do so. This apathy has also had the effect of preventing the calorifiers from adopting a system calculated not only to save life to the miner, but to secure an actual economy in the working of collieries. Cannot the Royal Commission before closing their labours be induced in a matter of such vital national importance to give justice and fair play to this system as regards its adoption? or will they still hold out in scientific acclusion, instead of practical operation?

INQUIRER.

MANCHESTER ASSOCIATION OF EMPLOYERS AND FOREMEN.

At the ordinary meeting of the members of the above society, held on Saturday at the Manchester Technical School, brief reviews on the International Inventions Exhibition, in the shape of short papers on special sections were given by several members. These embraced land boilers, stationary engines, and locomotives, whilst reviews on hydraulic machinery, mining, and electric lighting were adjourned to a subsequent meeting.

The PRESIDENT (Mr. W. H. Bailey), in opening the proceedings, said there were very different views as to whether exhibitions were useful or not to manufacturers in this country. He had, himself, very definite views as to whether it was advisable for an Englishman to exhibit in exhibitions abroad, where the tariffs were intended to be of a prohibitive character. For instance, in the United States he considered that it was foolish for a man to exhibit unless he had a strong monopoly as a patentee, or something of that sort, which would enable him to command sufficient profit to pay the extraordinary duties which were levied on English manufactures entering the United States. Of course, there was a great deal to be said on both sides; he thought himself that Englishmen were giving the foreigners too much chance for copying our designs; on the other hand, it was just possible that the greater the publicity given to our manufactures might enable our countrymen to get a footing abroad before the foreigners themselves had time to copy their designs.

Mr. S. BOSWELL gave a short review on the land boilers shown at the exhibition. In most cases, he said, the exhibits in this particular section presented no features of special novelty, and the writer of the paper confined his remarks almost entirely to a short description of the "Non-Priming" boiler (Moy's patent), which was certainly a decided departure from the beaten track of ages. Priming was generally supposed to be due to a sudden reduction of pressure, and to a too rapid outflow of steam through a somewhat contracted opening, causing increased ebullition of the water under such opening. In the above boiler the patentee claimed to have overcome this difficulty by offering a much larger steam giving surface, so that steam could be given off calmly and quietly without the water being carried over with it; practically dry steam was got by this system, which was to have the water in a number of shallow trays, the bottom, or at least one side, of each of which was exposed to the heating surface.

Mr. THOMAS DANIELS, in the course of a brief review of the locomotives that are being shown at the Exhibition, said that, with one exception, there was very little that was new; there were small locomotives by well-known makers, very good of their kind, but he could not discover any invention about them likely to come into general use, or to be of any practical value either present or future. In fact, there had been very little scope for real invention as regarded the locomotive during the last 25 years, and the exception to which he had referred was the compound locomotive of Mr. Webb's, which he considered to be the greatest departure from ordinary practice of modern times, and entitled to be regarded as a real invention. After describing in detail the construction of this engine, Mr. Daniels observed that Mr. Webb's patent had been subjected to a good deal of criticism lately in the engineering papers, to which Mr. Webb had not taken the trouble to reply, but still went on, and seemed to have every confidence in the principle he had adopted. He had had some few mishaps, but when they considered the extra strain and other contingencies he had had to take into account they need not be surprised at this. The drivers would also be rather strange to the niceties required in working the engine; these difficulties, however, would be overcome with practice and other alterations in parts of the engines where they were found wanting.

Mr. JOSEPH NASMITH, in a short paper on the stationary engines, described the principal exhibits in this class, including Messrs. Galloway's engines, the Wheelock engine, by Messrs. Daniel Adamson and Co., and the engines shown by Messrs. R. Oxden, J. and L. Wood, and Chapman and Reed. With regard to the textile machinery, with which Mr. Nasmith also dealt shortly, he did not consider that there was any decided novelty in either spinning or looms.

After some discussion of the papers other sections of the Exhibition were left over to be dealt with at a subsequent meeting.

THE FIRST AUSTRALIAN GOLD FIELD.—The comparatively exhaustive character of the Australian gold deposits is shown by the fact that in one part of the Ophir district, in New South Wales, the principal quartz reef or blow, known as the Bluff, is at or near the historical spot where Hargraves found the first gold, the discovery of which has been the principal cause of Australia's rapid advancement. Here a solid mass of quartz, several yards in thickness, and fully 100 ft. in height, meet the eye. The quartz has a decidedly auriferous appearance, containing galena, iron arsenical pyrites, and probably a good percentage of silver. There is a very excellent site for quartz-crushing machinery near the Bluff, and the quartz can be obtained in almost unlimited quantities. The country between Ophir and Orange, a distance of about 18 miles, has an auriferous appearance, more especially so within a few miles of Orange.

A telegram was received at Spittlegate Ironworks, on Friday, from Adelaide, stating that Hornsby's binder had taken the first prize in the field trials of the Royal Agricultural Society of South Australia, held at Smithfield on the 22nd inst., beating M'Cormick, Howard, Wood, Johnston, Osborn, Deering, and Esterley.

NOTES ON A RECENT DISCOVERY OF CONNELLITE.

BY W. SEMMONS.

The gradual decline in the production of copper from the mines of Cornwall, and the consequent diminution of their number, renders any discovery of a rare copper mineral an object of interest to all mineralogists. Owing to the exhaustion of all the upper deposits those products of decomposition—the beautiful arseniates and phosphates, &c., which adorn the cases of our national collection and those of private collections—are getting more and more scarce, and perhaps in the near future, so far as Cornwall is concerned, we shall have to rely for illustrations entirely on its past productions. Probably one of the most beautiful of these minerals was the rare species, connellite, a sulphato-chloride of copper found in small crystals of a deep blue colour in copper veins traversing clay-slate at Huel Providence and Huel Unity, also in a vein at Huel Damsel traversing granite. Huel Unity was a perfect storehouse of copper minerals, no less than 14 combinations of that metal being found there, some of them being crystallised better than in any other mine, so that we might naturally look for good illustrations of connellite here if any.

Bashleigh in 1802 seems to have noticed the mineral from Huel Providence as a copper ore of an azure-blue colour, composed of needle crystals. Phillips in his 1823 edition does not, however, notice it. Connel (Report British Association, 1847) gives an interesting account of its composition; while Dana, 1850, gives it a specific name. Prof. Maskelyne's paper (*Phil. Mag.*, Jan., 1863) gives us by far the greatest information on the mineral, and one cannot help admiring the skill with which crystals of such minute size were figured and described. Bertrand has since (*Bull. Soc. Min.*, 1881, IV.) determined the mineral as optically uniaxial and positive. Our knowledge of the mineral being, therefore, derived from very scanty material and from such old specimens a detailed description of it from a new find in the Camborne district seems warranted. I have ventured, too, to give a detailed description of the associated minerals, and am able to do this more fully than usual, as owing to the miners not knowing connellite they have put aside specimens of other ores mistaking them for it. We owe our knowledge of this recent discovery largely to the energy of a local mineral dealer, Mr. William Peters, of Redruth. The Camborne district is situated at the western end of the boss of granite in which most of the productive tin mines of the county are now worked. On the west and north flanks of this lies the killas (clay-slate) for a distance of several miles, when we again meet with other outcrops of granite. Like many other minerals which owe their existence to a peculiar combination of conditions, connellite does not seem to occur massive, and the little patches that appear compact resolve themselves into a mass of minute crystals. These are generally in radiating and divergent groups, but single crystals are occasionally found standing out distinct and alone. Dr. Ch. O. Trechmann informed me he was not able to discern the hexagonal pyramid of Maskelyne under the microscope even with a power of 35. Dr. Trechmann has, however, since forwarded me a note giving a detailed description of the crystallographical characters of the mineral in two specimens I sent him. As mere extracts therefrom would, in my opinion, simply spoil the value of this note I append it in full at the end of this paper. In one specimen (received since Dr. Trechmann's examination) the crystals are so large that a hand lens of very low power enables one to determine their forms. I notice that we have here only the hexagonal pyramid and the dihexagonal prism. The faces of the pyramid are unequally developed, some planes being developed at the expense of others as in some quartz crystals. I am informed that a specimen in the collection of the Museum of Practical Geology also shows this almost complete obliteration of alternate planes. The colour of the specimens I have seen is blue of various shades. In the well formed and larger crystals we have when light passes through them the most charming tints thrown up, and equalling the hues of the finest sapphire. The other physical characters agree with those given in Dana (*System of Mineralogy*, p. 627), as belonging to connellite. Associated with connellite we have crystals of brochantite of simple form, also very beautiful crystals of chalcophyllite; also cuprite, malachite, azurite, chalcocite, and chalcopryite. The better way of describing their associations is perhaps to detail the way in which the minerals are found in the specimens produced.

No. 1.—The main mass of the stone consists of massive cuprite, which has been cut into patches by strings of malachite and brochantite. On the upper surface are octahedral crystals of cuprite, and in sundry small cavities very well-defined crystals of brochantite. In some cases lying directly on the cuprite, and in other cases interlacing and covering the brochantite, are transparent crystals of connellite.

No. 2.—Crystals of cuprite (rhombic dodecahedra with slight development of octahedral faces) have a patch of connellite crystal lying directly on them.

No. 3.—Compact mass of cuprite with traces of decomposition therein to only a small extent. The upper surface is covered with a layer from $\frac{1}{4}$ to $\frac{3}{4}$ in. thick, composed of a mixture of compact and crystalline brochantite with occasionally well-defined crystals of the same mineral. Scattered over the surface, and also in small cavities, are well formed transparent crystals of connellite.

No. 4.—A mass of compact cuprite, on which there is a small patch of malachite. This is covered in places with minute crystals of connellite of a charming deep blue colour.

No. 5.—A most interesting stone, the main portion being cuprite, on and in which are malachite and brochantite, some crystals of the latter being most distinct and perfect. On some undecomposed cuprite crystals are two radiating clusters of connellite crystals, having their terminal planes (hexagonal pyramid) beautifully developed. The crystals from centre of radiation to apex of pyramid are about $\frac{1}{4}$ in. in length, so that their form can be distinguished by the naked eye. The connellite crystals, too, are found filling up the interstices between sheaves of radiating brochantite crystals.

No. 6.—A stone almost entirely composed of azurite and malachite with cuprite. On the malachite is a layer of minute crystals of brochantite, while a very few small crystals of connellite are scattered over the stone.

No. 7.—Some minute radiated tufts of connellite with malachite. Also some distinct crystals of chalcophyllite (copper mica) mixed with the malachite. In one small cavity there are pseudomorphs of malachite after chalcophyllite, the external cast only remaining as the interior is quite hollow. No cuprite found, but in its place copper pyrites.

No. 8.—Very beautiful and well defined hexagonal prisms of chalcophyllite on a base of chalcocite. The latter mineral is much decomposed. Again no trace of cuprite.

No. 9.—Decomposing chalcocite with radiated layers of small but brilliant crystals of chalcophyllite. Again no cuprite. We meet, too, here with little tufts of minute bluish green crystals, which are probably connellite.

The result of the above examinations tends to show that connellite is most frequently associated with cuprite, brochantite, too, being almost always present. The mineral, though, also occurs with chalcophyllite, but not so frequently. We notice that chalcophyllite is found rather with the sulphides chalcocite and chalcopryite than with the oxide, cuprite. Through the kindness of Mr. Thomas Darwin, F.G.S., Mr. F. W. Radler, F.G.S., and Mr. Pringle, I have during the preparation of these notes, been able to examine the new and old specimens of connellite in the National Collection at South Kensington, the Ludham Collection, and the Collection of the Museum of Practical Geology. I find the associated minerals with connellite here also to be cuprite and brochantite. Connellite in very minute crystals has recently been found in some stones from Marke Valley Mine, which is situated in the eastern part of Cornwall, and, therefore, a long distance from any of the previously known localities. I have not been able to examine many of the Marke Valley specimens, but the general appearance of those I have seen is similar to those raised in the Camborne district. The peculiar resemblance of the brochantite to that from Peru, which I described to this society (see *Mineralogical Magazine*, Vol. IV. p. 260), much interested me. There is also found frequently a peculiar amorphous green copper mineral, which gives reactions for both carbonate and sulphate, just as in the Peruvian specimens. The Peruvian brochantite was associated with decomposing atacamite. Although I have not yet seen any trace of atacamite in the Cornish specimens, it would not at all surprise me if we should find the connellite has derived its chlorine from this mineral. In conclusion, I trust that as probably sufficient materials are at hand, we may soon have presented to us a full and complete analysis of this rare and interesting combination.

NEW ZEALAND GOLD MINES.

The buoyancy of feeling noted in last summary still pervades the gold fields' communities, and all persons interested in the district are looking forward hopefully to the time when the new smelting processes will be brought to bear upon the quartz from our mines for the extraction of gold and other metals. Good progress has been made with the erection of the New Zealand Smelting Company's works on the Grahamstown foreshore, and the furnaces and other plant are rapidly approaching completion. The same remark applies to the Woodstock Company's furnace at Karangahake, which is confidently expected to be in operation within the time stipulated with the contractor, which expires at the end of next month. Meanwhile large areas of ground at Karangahake, Waihi, Waitekauri, Waiorongomai, and Waiomo have been taken up containing lodes which bear more or less silver, and, if assay tests already made can be accepted as reliable *criteria*, many of them will yield handsomely. The Waihi district has lately received special attention from speculators, rich results having been obtained from tests taken from reefs in the vicinity of the hitherto neglected Rosemont spur, which was long ago condemned so far as its gold-producing qualities were concerned. Many of the reefs of the Thames district have always yielded gold of very poor quality, and as it is thought that the precious metal may be largely alloyed with silver, in payable quantities, several mine managers are preparing to solve this interesting problem by testing small parcels of quartz. Several new mining companies have been ushered into existence during the last month, the most prominent being the New Albion, which was floated three weeks ago, with a capital of 10,000*l.*, in 20,000 shares of 10*s.* each, to work the well-known Albion claim, at the head of the Moanatairi creek. Handsome results have been obtained by tributaries from the Success and Star of the South lodes it the Whau level, and the company has just started operations with the view of tracing the runs of gold downwards, and working them at lower levels. Mr. Henry Tapp will be a passenger for England by the outward-bound mail steamer, having in conjunction with Mr. T. A. Dunlop leased from the Thames Harbour Board a valuable foreshore allotment, situated at the natural outlet of the Waiohiki creek, which he purposes placing upon the London market. In the early days of the Thames gold field, before the value of tailings was fully recognised, and when exceedingly rich quartz was being obtained from the principal mines, nearly all the refuse from the crushing machines were allowed to flow seaward, and distribute itself about the beach. The Waiohiki creek carried away the water from the tail races of the batteries at which the crushing operations of the Caledonian, Golden Crown, and other rich mines, were conducted, so that there are known to be immense deposits of tailings at its mouth. Private mill-owners at one time reduced large quantities of stuff taken from this locality, and they obtained capital results, and when dredging operations were in progress so far out as the end of Goods wharf, tailings charged with quicksilver were brought up by the dredges. Mr. Tapp expects to be able to use the electro-amalgamator with good effect when working his allotment. After having granted this lease and another, the Harbour Board awoke to an appreciation of the value of their property, and declined to entertain further applications until the utility of the new processes for treatment of quartz and tailings shall have been proved. Mr. Tapp has also, with Messrs. Bayldon (2) and Hoare, taken up the greater part of block 27 in mining leases, and made arrangements for the purchase of the freehold, with a view of working this promising part of the gold field—which is traversed by all the lodes of the Una Hill—on a large scale, erecting substantial machinery for that purpose. Excitement was rife in the early part of the month in consequence of the rich returns coming from the Cambria Mine, and the good results seem likely to be maintained for some time to come. Two retortings have taken place since the publication of last summary, the return for the past fortnight being 1145 ozs. 17 dwts. gold, from 418 loads quartz, and 725 lbs. specimens (the latter alone yielding 759 ozs.); while that of the second was 777 ozs., for which 393 loads and 690 lbs. specimens were crushed. The directors were enabled to distribute 3150*l.* of the company's profits in the form of a dividend of 2*s.* per share. The workings throughout the mine continue to afford payable results, and the winze below No. 3 level has followed the run of gold to a depth of 30 ft., a good show of the precious metal having been left in the hanging-wall leader at last breaking down. The general dirt at the batteries is yielding satisfactorily, and the manager has now about 600 lbs. specimens on hand. Arrangements have been made for the continuance of the Moanatairi Extended shaft for the purpose of entering a lower level. In several other mines in the district improved prospects are reported. The Moanatairi Company has resolved upon an increase of its capital, which will enable the commencement of operations upon an offshoot of the Cambria lode, and eventually upon the main body; the first crushing from the Thames Golden Crown workings from the new shaft proved payable. The manager of the New Prince Imperial Mine is obtaining remunerative quartz from No. 1 reef and elsewhere; in the Caledonian, two small specimen-yielding runs are being worked in the stopes at the Red Queen leader at No. 3 level, and another crushing is ready for the battery; the manager of the Bright Smile has his blocks well opened for working, and the recent crushing proved highly profitable; in the New Manukau, the leader driven upon from the Waiohiki workings shows gold, and is likely to furnish payable blocks; the Waiohiki Mine maintains its well-established status as the most regular gold producer in the district; a vein which has yielded small parcels of picked stone has been found in the Moanatairi Extended workings; the Darwin reef, in the western drive at No. 3 level, has shown gold freely when lately broken; an improvement is noticeable in the quartz in the Hand of Friendship Company's drive on Mariner's lode; the manager of the Deep Level Cross has payable blocks in hand, and is now crushing; and the new proprietors of the Queen of Beauty have treated one payable parcel of quartz from No. 5 level, and have now another lot in readiness. The prospecting operations of the Caledonian Low Level Company are confined to the extension of the cross-cut at the 640 ft. level towards the Waiohiki lode, which is now passing through favourable country, and may strike a body of quartz at any moment. Provision is contained in the Gold Mining Districts Act Amendment Bill, now before Parliament, for the management of drainage matters by the boards, and the levying of drainage rates as recently suggested by the Warden. The gold returns from August 14 to September 11 inclusive are 2950 tons of stone crushed, yielding 4331 ozs.—*Thames Advertiser*.

In New South Wales there are 100,000 more males than females, hence the readiness with which respectable female immigrants find husbands.

THE DIAMOND DRILL IN NEW SOUTH WALES.—The diamond drill is doing good work in discovering or proving coal in various parts of the Colony, the most important recently discovered being a seam of good coal, some 12 ft. thick, in the parish of Heathcote, 28 miles from Sydney, on the Illawarra Railway line. The drill pierced this seam at 847 ft. below the surface, thus opening up a new and extensive coal field. Hitherto all attempts to find coal near Sydney have been unsuccessful, but whether because the bores had not reached a sufficient depth, or through some defect in the boring by which the drill pierced the seam without its existence having been detected, is not at present apparent. When the Illawarra line of railway reaches Heathcote it will be possible, not only to send coal from the mine to Sydney by rail at a very moderate cost, but many of the vessels which now have to visit Newcastle for their coal supply may be able to obtain it in Port Jackson direct from this mine.

Trade Reports.

CORNWALL.

October 29.—Dulness is persistent, and speculation is practically at a standstill. How long the present condition of affairs is likely to continue no one appears able to suggest, for no adequate cause seems to present itself for a change in any direction. We believe that something will depend upon the result of the General Election—that is, if that result should be decisive in either direction. What trade, and mining with it, has reason to fear here is not so much the victory of either party as the too close balancing of both, and the uncertainties thence arising. It will be a good thing every way when the election is over, especially in the county, for the heated state of feeling is doing no good, and if rumour is correct there is likely to be some sharp difference of opinion between masters, or managers, and men outside what is called the Mining Division—more pronounced possibly than any that is likely to take place within.

The price of dynamite is unquestionably a great scandal, but it is difficult to see what can be done. The remedy would be the combination of the leading mines to make on their own account. But is this feasible?

Some doubt appears to be felt at the statement that there were ever at any one time 60,000 persons employed in the mines of Cornwall, and probably it would be difficult to afford absolute statistical proof. There does exist, however, what may be regarded as an authoritative summary of the number employed half a century since (1836-37). It was drawn up by Sir Charles Lemon, and shows a total, with 160 enumerated mines, of 26,896 men, women, and children. Allowing for a few omissions Sir Charles put the full total at 28,000, and then there were five mines employing over 1000—United Mines, 3196; East Crofty, 1004; Fowey Consols, 1680; Tresavean, 1354; Wheal Vor, 1174—or, 8328 in all.

Mr. R. N. Worth, F.G.S., who has for some considerable time been engaged in the investigation of the petrology of the district within a radius of some 20 miles of Plymouth, and who has made a microscopic examination of the leading varieties of the local rocks, laid the first instalment of the result of his labours before the members of the Plymouth Institution last week, the museum of that society embracing several hundred illustrative specimens which he has collected. Mr. Worth dealt with the sedimentary rocks of the locality, but specially with the volcanic rocks and intrusive greenstones. The forms are of exceptional interest and of much wider variety than has been commonly understood, and the application of the microscope (for the first time) has revealed some remarkable features in their structure—rocks that appeared to be compact lavas turning out to be fragmentary, simply consolidated tuffs. A fresh exposure of serpentinous rock has also been identified. The variety of the rocks of the district is something very remarkable, and Mr. Worth had to reserve to another occasion his account of the granite of Dartmoor and their allies, and the altered rocks on the Dartmoor border. The subject has never before been taken up as a whole, and one of the results of Mr. Worth's enquiries has been to emphasise the necessity for a new geological survey of Cornwall and Devon, the present maps being in many respects imperfect, not to say inaccurate.

The Dartmoor Preservation Society are taking steps to defend what are regarded as the public or quasi-public rights on Dartmoor against the Duchy of Cornwall, their action being mainly directed against enclosures. With the view of influencing public opinion a meeting has been held this week at Plymouth, at which a capital paper was read by Mr. Percival Birkett, showing the great antiquity and large nature of the commonrights connected with the Forest, and the adjacent belt of waste, known of old time as the Commons of Devonshire. Curiously, however, not a word was said about ancient mining rights on Dartmoor, though these appear to have been of the most extensive kind. In Cornwall the rights of the old tinners have all fallen into disuse, but we are not aware precisely how the case stands in Devon, where the tinners both made and exercised larger claims. Mining rights on Dartmoor are of little value now compared with rights of common, but there may be conditions under which a new value would arise. One of the points that appeared to be tolerably clearly established by Mr. Birkett, was the illegality within the Forest of Dartmoor and its purlieus of the great concessions that have been made. Hitherto, however, the success of these undertakings has not been such as to encourage the idea that much more will be done in this direction. Moreover, the importance of retaining the bogs as natural reservoirs for the supply of the rivers on which the low lands of the county depend for their fertility, and the bulk of the inhabitants for their supply of water, is now very generally recognised.

TYNE AND WEAR.

October 29.—There is a slight improvement in the Coal Trade on the whole, and some of the best steam coal works are fully employed, while others are only moderately so. The conditions are very favourable for merchants as prices are still low and freights also rule low. Steam small coals and bunker coals are still in good request. There is also an increased demand for house coals, but the demand is not sufficiently strong to increase the price materially. In Durham the gas coalworks are well employed. The trade returns for the port of Sunderland for September show that the shipments of coals have been large amounting to 355,220 tons. The total coal dues showed an increase of 15*l.* 12*s.* 1*d.* It is expected that the income for the year, and the coal shipments will both show a fair increase over the whole year above the revenue and tonnage of 1884, and considering the dull times we have had to pass through this is satisfactory. The shipments of coals and coke at Tyne Dock for the week were large, amounting to 115,025 tons. The imports of various kinds were also large. The dispute at the Wardley Colliery has, so far, been settled, and the men have again commenced work this week. The former rate of wages and other arrangements are to be adhered to until the matters in dispute can be finally settled by the Joint Committee appointed in connection with the Colliery Owners' Association, and Miners' Association in Durham county. The electric light is to be adopted on a large scale for lighting the works at the Broomhill Colliery, in North Northumberland. Since those works were taken up by the present proprietor, Mr. Andrews, they have been pushed vigorously, and a large output of coal has been worked. The coal is a good steam coal, and part of it is in special esteem as bunker coal for steamers.

The Iron Trade continues extremely dull and quiet, the dulness of the Scotch market and the advancing season tend to intensify the gloom which has settled on this trade. It certainly is difficult to account for the fact that although shipments have been good during the past few weeks, and a considerable amount has been added to warrant stores, yet the price keeps drooping. Warrant sales are now nominally 32*l.* 9*d.* per ton, but they can really be got for 6*d.* less. Messrs. Connals stock is 107,795 tons, an increase of 1368 tons in the week. Shipments of pig metal are 56,742 tons. The price of No. 3 is now 31*s.* 10*d.* The foreign demand is small, except to Germany. Scotland also continues to take a fair quantity. The finished iron trade continues very slack. Ship-plates have been taken at 4*l.* 12*s.* 6*d.* Common bars

are 47. 15s. to 47. 17s. 6d. Steel is lower in price. Steel-plates are about 87. 12s. 6d., and angles 67. 5s., steel rails being 47. 15s. Coke is dull at Middlesbrough, and price is unaltered. It is reported that the famous firm of R. Stephenson and Co., of Newcastle, will amalgamate with Messrs. McIntyre Brothers, shipbuilders, at Hebburn. This old firm has, of course, always been famous for the production of first-class locomotive engines, but it is not so well known that they have also produced for a long period first-class marine engines, boilers, and marine work generally. The principal shareholders in the shipbuilding company will retain a substantial interest in the business, which will consist of shipbuilding, marine engineering works, and the construction of docks. The result of the amalgamation will be the formation of a first-class shipbuilding and marine engineering firm. There is some improvement in the commercial world; there is increased employment for ships, and freights also improve a little. This is shown by the fact that sales of steamers have often been effected lately, while for a long period the large number of steamers unemployed were unsaleable. Of course, the sellers have to make a great sacrifice in order to effect sales, the price realised being about one-half the original value of the vessel. Small and moderate-sized steamers are gradually falling into the hands of the larger firms. There is great activity in the Elswick Works in all departments. A number of ships are in course of building, including the great ironclad, Renown. A large vessel, upwards of 4000 tons burden was launched from the Walker yard of the Armstrong, Mitchell Company, on Saturday. There is also a considerable amount of work on hand at the great works at Jarrow, and the new steelworks are now considerably advanced.

THE GATESHEAD TRAMWAYS.—A meeting of the shareholders of the company was held at the London office, East India Avenue, on Monday. The meeting was called in pursuance of a requisition from a majority of the shareholders for the purpose of considering a resolution in favour of removing the offices of the company from London to Gateshead. Major Bower-Lane moved a resolution to that effect. He said that 6 miles of tramways had been constructed by the company at a cost of 14,000l. per mile, and he thought that contractors could have been found who would have completed the work at 5000l. per mile. Somebody had the money which had been so recklessly expended. The Rev. W. Moore-Ede, the Rector of Gateshead, seconded the motion, which was carried unanimously; the business of the company will, therefore, be transferred to Gateshead, without delay. There is a strong impression here that the funds of the company have been recklessly squandered; and certainly, 14,000l. per mile appears to be an enormous sum to expend in the construction of a tramway on the old turnpike roads, where no cuttings, bridges, or embankments, were required. The operations of the company have not yet been attended with success, no profit having yet been earned, although the routes of the tramway pass through densely populated districts, the population of the borough now being 70,000. The traffic is worked entirely by steam-power, which is stated to be much more economical than horse-power, where it has been introduced in other localities. The removal of the management to this locality will, it is expected, be productive of good results.

Some time ago the North-Eastern Railway Company were requested by the Cleveland pig-iron makers to reduce the charges for the carriage of the minerals used in the making of pig-iron, and a rebate of 10 per cent. was allowed at that time. Owing to the continued depression in trade, another deputation waited on Mr. Tennant, the general managers a few days ago asking for another concession, and an allowance, making a total rebate of 13 per cent. on the original carriage rate, has been made.

SOUTH WALES.

October 29.—The Coal Trade at Cardiff is assuming its old proportions, the shipments of last week having amounted to 154,939 tons foreign and about 23,000 coastwise, with 2086 tons patent fuel. At Newport and Swansea trade was not so good, the former having sent away 26,162 tons foreign and 20,819 coastwise; and the latter 16,230 tons foreign and about 11,000 coastwise, with 3730 tons patent fuel. The house coal trade is showing increased activity with the advent of cold weather, and, on the whole, the outlook is cheerful. Prices remain about the same. Llanlitt Colliery is about to be restarted under the management of Mr. Hugh Begg, of Van House, Caerphilly. This will give employment to about 400 hands. The Avon Valley is about to be opened up. The fine measures of the Ynysybwll Valley are also to be found here. The thickness of the coal strata is in the aggregate about 80 ft.

There is no improvement in the Iron and Steel Trades. Cardiff sent away last week 3390 tons, and Newport 370. The arrivals of iron ore at Cardiff amounted to 6103 tons from Bilbao, and 5745 from other places; Newport received 9347 tons from Bilbao, and 3731 from other places. The whole of the plant of the works at Wellington, Shropshire, has been bought by the Cwmavon Company. The former works will be carried on on the Usk, near Newport, in the future, to save excessive railway charges. Day-to-day contracts will be carried out at Blaenavon and Dowlais Ironworks from the 1st of November. The colliers will not be affected by this regulation. The tin-plate trade is healthy, owing to the reduction of make. Best IC cokes fetch from 15s. to 15s. 3d.; Bessemer steel from 15s. to 15s. 6d.; Siemens' steel, 15s. to 16s. According to the report of Messrs. Vivian and Co. (Limited), the profits for last year were sufficient to pay a dividend of 6 per cent. The profits are set down at 9346l. The directors have taken a lease of Enje mines, in Norway, which are estimated to be capable of producing nickel at a very low rate.

NORTH AND SOUTH STAFFORDSHIRE.

October 29.—The position of the Cannock Chase coalmasters is slightly improving with the advance of the season, but they are not yet generally able to obtain list prices, and therefore the declaration of an advance to winter rates is, for the present, out of the question. On the South Staffordshire side of the district proper boats are reaching the collieries with fair regularity for supplies of furnace and forge coal. Consumers are not, however, at present prepared to advance upon former rates, for the supply upon the market keeps very abundant. Prices, therefore, remain as mentioned last week.

New bookings in the pig-iron trade are not of much account, but deliveries under former contracts keep good. Best pigs are 57s. 6d. to 60s.; medium sorts 40s. to 42s.; and common 33s. to 36s. 3d. The three blast-furnaces at the Old Park Ironworks, Wellington, which, together with the other property of the Old Park Company, have lately been purchased by the Chairman of the Hoybridge Iron Company, have been resold to the Cwm Avon Iron Company, South Wales, who are now removing the furnaces and plants to their own works. Manufactured iron is without much alteration on the week.

A conference of miners' delegates representing South Staffordshire, East Worcestershire, and Cannock Chase was held at Great Bridge on Wednesday, when arrangements were completed for the distribution and collection of the ballot papers upon the question which has been put before the county by the Manchester Conference as to stopping the pits to obtain an advance.

The report of the Darlston Coal and Iron Company shows a

profit for the year ending June 30th of 897l. This amount added to 340l. brought forward from last year it is proposed to appropriate in payment of debenture dividends, leaving 176l. to be carried forward. During the earlier part of the year considerable expenditure on capital account was made, with a view of placing the company in a position to raise and load from 4000 to 5000 tons per week, and this at short notice could now be done if there were a demand for the coal. As it is, however, the company has not been able without forcing the market to get rid of more than a weekly average of 2400 tons.

Negotiations are now pending for the reconstruction of the Arbitration Board for the North Staffordshire pottery trade. Mr. W. Owen, of Hanley, the operatives' secretary, has received a notice from the Manufacturers' Association favourable to the establishment of such a board, and a meeting will shortly be held when the board will be formally constituted.

LANCASHIRE.

October 29.—A continued absence of any weight of business coming forward is still reported in all branches of the Iron Trade in this district, and the tone of the market generally is weak, although there is no actually quotable reduction in prices. Some of the local and district makers of pig-iron still hold firmly to their full list rates of 39s. to 39s. 6d. less 2½ delivered equal to Manchester; but these prices are purely nominal, as they are not being actually got on ordinary business transactions. In fact, there is so very little buying going on that prices in any case are scarcely being tested, but there are sellers prepared to come considerably under the current quoted rates to secure business, and 38s. 6d. less 2½ represents the full selling price of local and district brands, whilst good named brands of Middlesbrough foundry are to be got at under 41s. net cash delivered equal to Manchester. Hematites continue in very poor demand, and good foundry qualities are offered at about 51s. 6d. to 52s., less 2½ delivered equal to Manchester. In the finished-iron trade new business comes forward very slowly, and it is with difficulty that works are kept going from hand to mouth, but it is only in exceptional cases where there is any giving way below the late minimum rates of 57. 5s. for bars, 57. 15s. for hoops, and 67. 15s. for local made sheets delivered into the Manchester district. The condition of the engineering trades is without change, and certainly without improvement. The usual extra winter requirements are giving an increased activity to the coal trade so far as house fire qualities are concerned, but in other descriptions for ironmaking and steam purposes there is no material improvement to report, and many of the collieries have not yet been able to get on to full time. The leading colliery firms in the Manchester district are with the close of the month advancing their prices 5d. to 10d. per ton, and at the same time giving an advance in wages to their men of 10 per cent. In other districts no change is yet announced.

The advance in the Manchester district is not more than the upward movement that usually takes place with the commencement of the winter's trade, but which was only partially carried out at the commencement of October, and the advance in wages will place them on the same level at which they stood when the reduction was made in May last. This voluntary action on the part of the Manchester colliery-owners will, no doubt, act as a stimulus to the agitation which is now going on in other districts for an advance of 15 per cent., but, practically it will not more than place the men at the Manchester collieries on a level with the rate of wages which are already being earned by the colliers in West Lancashire, whilst so far as prices in West Lancashire are concerned they are quite as low as they were when the men had to submit to the last reduction, and taking them all round they are still 3d. to 4d. per ton lower than they were at this time last year.

In the Shipping Trade, except where orders for house-fire coal are being got, there is very little doing, and both at Garston and Liverpool prices continue very low.

DERBYSHIRE AND YORKSHIRE.

October 29.—Some trifling disputes have lately taken place at two or three of the Derbyshire collieries; but these appear to have been arranged for the present, at least, in view of the more important question which has been brought forward—that of a 15 per cent. advance of miners' wages. The men are asked to decide by ballot as to whether they are prepared to strike in the event of the employers refusing to concede the advance asked for. There is certainly not the slightest hope that the colliery-owners will give an advance, and there is not much likelihood of the men turning out to face the winter, and submit to semi-starvation at the time of year to which they had been looking forward to holding high festivity, and adding to the comfort of themselves and their families. The men who are promoting the proposed strike, and the limiting of the output of coal, are not the workers in the mines, but those who draw a good salary weekly from those who do, as their friends and admirers. They are the same gentlemen, too, who hold conferences almost weekly, and are well paid for attending them, and who also ask the miners to send them to Parliament, and to pay them 400l. or 500l. a year to live there for about six months, or during the Parliamentary session. Some of these candidates, however, are likely to come to grief, for many of the men have shown a most decided disinclination to contribute towards the support of a miners' Member of Parliament who is also the chief agent of the Association, and that on the ground that their services are of more importance in the districts they are connected with than they are likely to be in London, although in all probability they would do less mischief by being located in the latter.

The House Coal Trade in Derbyshire and Nottinghamshire has kept up very well, and the men, as a rule, are kept nearly fully employed at the various collieries, so that they are now better off than for many months past. A good business continues to be done with the Metropolis from the principal collieries, including Clay Cross, Staveley, and Eckington, as well as a few others that sell direct to consumers, and who, of course, have an advantage over those who sell to merchants and dealers only. Prices at the pits, however, have not made any advance, the black shale, or Silketones, making from 8s. 6d. to 10s. per ton. In gas coal there is also more doing, as the consumption will soon have reached its maximum for the year. Steam coal has undergone but little change; but at the few places which are able to send to the Humber for shipment the demand must now sensibly decline, and more dependence placed upon the inland trade. Some of the railway companies are taking a fair tonnage for their locomotives, and a considerable quantity continues to be used at the blast-furnaces, which, as a rule, belong to colliery companies. In small there is no quotable alteration, there being a good deal of competition on the part of several districts for its sale, especially for engine purposes, for the Lancashire and other manufacturing districts. The make of coke in Derbyshire is not equal to the consumption singular to say, although the seams of coal are well suited for the purpose, so that a good deal has to be brought from other districts.

The production of pig in Derbyshire and the adjoining county is by means so large as what it was, but it is fully equal, if not more, than is required by outside consumers and the local foundries and mills. There is scarcely so much doing at several of

the largest works, where a tolerably fair trade has been done in certain specialties that are not required during the winter months. At the forges business has been rather quiet, whilst at the foundries generally engaged in light work slackness has prevailed for a considerable time past. There is not so much doing in mining tools and machinery and engines, and one or two of the best known establishments for such specialties have done comparatively little for months past. In malleable iron, work has been of a steady character, and the same may be said with respect to steel spades and shovels, for which one firm has a very high reputation.

The improvement which it was thought had set in so far as regards the trade in Sheffield a few weeks ago has turned out somewhat illusive, for some of the departments in the town and district are nearly as bad off as what they were in the summer. This is the case as regards the general American as well as the ordinary foreign trade. The home business, there is no doubt, is suffering from the interest that is being taken all over the country in election matters, so that no material improvement can be expected to take place during the remaining part of the year. It may, however, be stated that there are a few branches that are doing fairly well. The make of Bessemer steel has kept up very well, and there are some good orders in hand for rails for South America in particular, as well as for other kinds of railway material, including springs and tyres. Billets are also in fair request, as well as some special quantities for light material. In crucible steel the output has kept up to about the recent average, especially for mining tools, such as picks, wedges, hammers, and also for wheels and axles combined. There is not so much doing in steel plates for ocean-going vessels as might be expected, but there is every reason to believe that the new year will see a marked change for the better in this department. In ordinary wheels and axles some of the works are doing well, considerable quantities being for the River Plate, whilst a good deal of other kinds of material is being sent to Australia and India. The agricultural implement branch, contrary to expectation, has not improved, and at the wagon works they appear to be principally engaged on completing orders they have had in hand for some time. In table and other kinds of cutlery no improvement has taken place, although such has usually been looked forward to as the year drew to a close, and the same may be said with respect to edge and most descriptions of light tools.

The Stanhope Silkstone Colliery, near Barnsley, is again in the market, and about to be sold. It has changed hands several times during the last dozen years, and was owned by two companies, both of whom came to grief. It is to be hoped that better success will attend the new purchaser, whoever the lucky individual may be.

MINING IN QUEENSLAND.

IMPORTANT INCREASED OUTPUT.

According to the annual Government report just issued, it appears that during the year 1884 the total yield of the Queensland mining industry was 307,804 ozs. of gold, which at 31. 10s. per oz. represents 1,077,314l., and other minerals, most of which were exported, valued at 232,298l., or a total yield of mining produce of 1,309,612l. for the year. The increase in the return from the gold fields was most remarkable, amounting to 95,017 ozs., a value of 332,559l., being an increase of almost 50 per cent. over the yield of the previous year. It is especially satisfactory to notice, too, that this increase was not derived from one field only, but that the yield from most of the principal gold fields—Charters Towers, the Etheridge, Ravenswood, Rockhampton, Clermont, Gladstone, and Gympie—showed a considerable increase over the output of the previous year; an increase which there is every reason to expect will continue through the present year. The number of miners employed on the gold fields is given as 3785 Europeans working in quartz mines and 443 in alluvial, and 1225 Chinese working alluvial, being an increase of 840 Europeans over the number of the previous year, and a decrease of 102 Chinese. The quantity of quartz crushed was 148,552 tons, for a yield of 259,254 ozs., or at the average rate of 1 oz. 14 dwts. 21 grs. per ton. There is a discrepancy between the return of gold from quartz as shown in two separate tables which form part of the official report. In table B the yield of gold from quartz is set down as 281,629 ozs., but in table D it is given as only 259,254 ozs., a difference of 32,000 ozs., or about 112,000l. in value. The gold fields revenue showed an increase of 705l. 3s. 10d. for the year. Turning to that portion of the report which deals with minerals other than gold, we find that the total value raised during the year was 232,298l., that the number of miners employed on these mines had decreased by 204, and that the mineral lands revenue was less by 638l. 16s. 9d. than in the previous year. In the returns, however, from which this portion of the report is compiled, there are obviously some most extraordinary mistakes, such as render that portion of the report dealing with minerals other than gold of little value. Dividing the given value of the produce of each class of mines by the number of men returned as employed in them, it would appear that each

Quartz miner raised during the year the value of ... £200
Alluvial (gold) miner raised during the year the value of ... 55
Tin miner raised during the year the value of ... 233

At Charters Towers the total amount of stone crushed during the month of July was 6950 tons 14 dwts., giving a yield of 15,457 ozs. 4 dwts. 19 grs. of gold, the average per ton being 2 ozs. 4 dwts. 11 grs. The stone crushed for the seven months ending July was 40,153 tons, giving 79,422 ozs. 5 dwts. 10 grs. The field is improving, but the water in the dams is nearly exhausted, and there was no sign of rain on August 10.

A NEW AUSTRALIAN COLLIERY.—Another large and important addition has recently been made to the list of New South Wales coal mines, by the formal opening of the Gladstone Colliery, at Katoomba, one of the most picturesque portions of the Blue Mountains. It is situated nearly 1500 ft. below the level of the railway, the coal being raised by specially constructed appliances to the edge of the precipice. The land belonging to the company owning the mine was originally taken up—when probably half a dozen white men had not yet trodden it—by an enterprising Sydney gentleman, about the middle of 1883, and a company to work the mineral contained beneath it was floated for 50,000l., in 17 shares, during the same year. Prior to deciding upon this, tests had been made which proved the coal to be of excellent and marketable quality. The holding comprises a complete point of country slightly to the west, and in view of the celebrated Wentworth Falls. The seam at present being worked (the middle one) has been opened out by two horizontal drives from an adit in a gorge 1½ mile south from the company's railway siding (which is almost exactly at the 63 mile post from Sydney, on the Great Western line), and is 1200 ft. below the railway level or 2000 ft. over the level of the sea. It opens out on the side of a hill facing a gorge, and the entrance is at the bottom of a cliff nearly a 1000 ft. clear in depth, necessitating the use of ladders to reach it, the scaling of which forms excellent gymnastic and nerve-strengthening practice for those unaccustomed to gazing down such giddy heights. The drive is already about 750 ft. in the hill, and even yet the best quality of the seam has not been touched. A 1000 tons per week is the guaranteed output.

Meetings of Public Companies.

NEW TERRAS TIN MINING COMPANY.

The third ordinary meeting of shareholders was held at Grampound Road, Cornwall, on Tuesday.

Mr. ROBERT SYMONS, of Truro, presided.

The report of the committee of management appeared in the *Mining Journal* last week.

Captain RICHARD EADE reported: In handing you my annual report on this mine, I beg to say that the result of its development during the past 12 months has been of a most satisfactory nature, as far as the character and produce of the lodes are concerned. We have sunk the engine shaft to a depth of 27 fms. At the 18 we have opened up the great lode for upwards of 20 fms. on its course; it is over 30 ft. wide. On the north side, running parallel with it, there is a small lode about 2 ft. wide, and separated from it by a floor of clay or flokan a few inches thick. The yield of tin from this lode exceeds $\frac{1}{2}$ cwt. per ton of lodestuff. The average produce of the great lode is 30 lbs. of tin to the ton of stuff. This tinstone can be put to the dressing floors and cleaned ready for market for about 4s. per ton of stuff, thus leaving a very handsome margin for profit. The east shaft has been sunk about 20 fms. from surface. At 10 fms. depth a level has been extended 29 fms. west on the course of a lode 28 fms. east on the same lode, which is about 3 ft. wide in each level, and opened two others of a most promising character. Samples taken from them gave from 20 lbs. to 400 lbs. of tin per ton of lodestuff. When excavating for the foundation of the new stamps engine-house, we came on the back of one of these lodes, from whence we obtained stones containing more than 15 per cent. of tin. We have put up a new dry or changing house for the men; also a new house for the permanent winding engine, and have removed the one that formerly worked the stamps to this house, and fixed winding gear for drawing the tinstone to surface; also attached a capstan to this engine, thus enabling us at all times to have command of the pumping gear in the engine-shaft. The new engine-house, stack, and loadings have also been erected; they contain about 2000 tons of stone, and are of a most substantial character. Many other things necessary for the laying out of a great mine have also been accomplished. The engine and boiler purchased at Alvingham Mine have been taken down and removed to New Terras, and the engine-men are now engaged putting it in the new house. The jiggers formerly in work at Wheal Jane have been purchased, taken down, and brought on this mine. About 1500 tons of tinstone from the great lode have been stamped, yielding about 12 tons of tin of the very best quality. Taking into consideration the abundant supply of tinstone at our immediate command, and that the fixed charges for working our 16 heads of stamps are nearly as much as they would be if 100 heads were running, it appeared the most practical course to adopt was to at once erect more powerful machinery for increasing the output of tinstone, and at the same time provide a sufficient quantity of water to work the additional stamps. The costs on working 100 tons of tinstone daily would be about 4s. per ton, whilst, with 16 heads of stamps, producing 80 tons weekly, it would be about 7s. per ton. Thus it will at once be seen we were taking the proper course in preparing to treat the larger quantity. Our surface erections consist of office, store-house, smiths' shop, carpenter's shop, men's changing-house, with large wrought-iron drying-tube, winding-engine house, stone-breaker, engine-house, stone-breaker and ragging-house, new stamping-engine house, stack and fly-wheel loadings, stamps-house, dressing-house, and tin-house. We have 16 heads of stamps. The winding engine-house contains one of Clayton and Shuttleworth's double cylinder engine with link motion. The one in the stone-breaker engine-house is Marshall's make. Both of them are really first-class engines. We have one of Baxter's patent Knapping motion machines for breaking the tinstone, and it answers admirably. The new engine is a double-acting rotary one, 32-in. cylinder, with two 12-ton fly-wheels; it was made by Mathews and Co., of Tavistock, and is quite equal to new. In the dressing and tin houses there are sundry buggies and other apparatus for cleaning tin. We have upwards of 100 fms. of tramroads laid down in the mine. In the engine-shaft there is a cagerod for drawing the tinstuff to surface. In this shaft and also in the east one are 6-in. drawing lifts for pumping water. We purpose exchanging the one in the engine-shaft for a 14-in. plunger, to enable us to get a full supply of water for stamping and dressing purposes. Both shafts have been properly timbered, cased and divided, and ladders fixed to the bottom of each. The whole of our works are being laid out with the view of stamping 100 tons of tinstone daily.

The CHAIRMAN, in moving the adoption of the reports and accounts, said: Gentlemen, I need not, on this occasion, speak at any great length. In the first place I would observe that the delay of holding this meeting, which would otherwise have taken place in the month of August, has been consequent on the illness of the auditor. I call your attention to the fact, stated in the balance-sheet and the reports, which have been forwarded to you, of all the particulars of proceedings since the last meeting. So far as our finances have justified our works, our manager has gone on with them, having in view always this rule of his—not to incur debts he did not see the way to discharge. (Hear, hear.) I have known people run into debt, and thereby into difficulties, and get themselves landed in the Stannary Court. A great many instances have occurred very recently of this kind. We have taken care not to run into debt, so that we appear to-day with indebtedness, if any, of a very small amount indeed. (Mr. WINN, the secretary: None whatever, really.) With regard to the works, I would observe that we should have got our tin into the market, and have come before you with dividends to-day if we had the means of prosecuting the works as we desired to do. But we have been limited in our resources. We have done the best we could with the moneys in our hands, and now we want to adopt some means of raising funds for the completion of the metallurgical works which had been prosecuted so far as possible. For the completion of our metallurgical works and machinery it is necessary that we raise about 3000*l.*, and the question is whether our big shareholders—many of them are rich—are disposed to take additional shares so as to raise the amount. The prospects of our concern are such as to justify us in asking for a further sum of money for that prosecution. I think, with regard to our prospects, we are better off than most mines started in that county, at the commencement, for we have stronger evidence before us than most miners possessed when they started their mines. It is not so risky as most of them, inasmuch as we have tin near the surface, and that in abundance, and the quality of our tin is such that we are perfectly sure, without the slightest doubt, that profit can be made just shortly after our stamping machinery is in operation. Now, we have in the mine a stamping steam-engine just as good as though it came out of the founders' hand to-day, and it was purchased at a very reasonable price. Our manager is a first-class hand at making good bargains, and all the materials you have seen on the mine were purchased at a very cheap rate. The fact is Mr. James has done the best he could to get good materials at reasonable prices, and he will continue, doubtless, to do the same. If we can only have the 3000*l.* to set our machinery and everything in order we shall immediately return tin enough to leave a good profit. There is no question about it. When we say that the average produce of our tinstuff is about 30 lbs. to the ton of stuff, you may infer from that fact that we shall return a large quantity of tin very shortly after the stamping mill is in order; and, therefore, we say that if we can only raise that money it will not be long before we shall be in a position to declare a dividend. There are 5156 shares unissued. If those shares were taken and paid for we should have 10,000*l.*—money sufficient to carry our operations on. We have power to call up something like 2000*l.*, but it is not desirable that we should call up and exhaust our capital, because in most of the limited mines started in Cornwall the working up of all the capital has made the collapse of all the mines.

Mr. HARRIS-JAMES: Always to have a reserve at our back?

The CHAIRMAN: Yes; we want that at our back to have credit, and provide for contingencies.

Mr. T. ANGALL having seconded the resolution, it was carried, and Mr. Robert Symons, E. G. Hanley, and J. H. Harris-James were re-

elected the committee. Mr. J. H. Murray (Galashiels) was also added with option to serve.

Mr. HARRIS-JAMES: I have a proposition to make about the raising of the additional capital.

Mr. WINN (secretary): We want 3000*l.* at least to cover the expenses necessary for the erection of the proper machinery to turn out tin in a proper way, and to put your mine in full swing. How are you going to do it? I shall be pleased to hear what anybody has to say.

Mr. HARRIS-JAMES: We want something like 3000*l.* to carry out the mine in a practical manner, but there have been different suggestions as to the proper mode of working it. I believe it is generally agreed we have a good mine. Now, the best plan to be adopted is to get it as soon as possible. I propose that we issue some preference shares. I should say a 2*l.* preference share should carry $\frac{1}{2}$ per cent., and to be redeemable at the option of the committee on the mine entering a dividend state (say), three preference shares to be exchanged for four fully paid-up shares. I do not know if there is anyone to second that.

A SHAREHOLDER was under the impression that the committee had 1000 shares in reserve to get rid of as they thought best.—Mr. JAMES replied there were 4000 shares to be issued, and 1000 shares only were so issued.

Mr. R. D. DOBELL, jun. (Truro), congratulated the shareholders on the report and the balance-sheet presented. They could see that the mine had been carried on most satisfactorily, so far as the means at the hands of the committee were concerned. They were sure that the money had been well spent, and that there had been good value received. The question had arisen as to how they could raise fresh capital. No doubt this could be done in one or two ways, in preference shares, or debentures, or in the manner he should suggest—that they should issue some of the unissued shares. It seemed to him to come to this—they had been working that mine some two or three years. The present shareholders had borne the burden and heat of the day, and those who would come in would be receiving the result of their labours, and would be in a far more advantageous position than those who had spent their money. They were like the labourer coming in at the eleventh hour. Whoever entered there would be in that position. That mine seemed to him to be a fair investment. They had the machinery there; they had the mine proved, and the tin that had come from New Terras had been proved to be very superior tin. He, therefore, suggested they first consider the advisability of issuing some of the unissued shares.

Mr. HARRIS-JAMES said they had waited a long time in trying to get this money; in fact, some of the shareholders had complained of the delay in achieving success. They had written to different shareholders; but they did not seem to come in as fast as they could wish. Mr. Dobell had given them a good version of the matter. But what were they to do to raise the capital? There must be some inducement in order to have the necessary capital if they were to carry the mine to a successful issue.

Mr. DOBELL thought Mr. James' proposal a good one if he included the words "if necessary."

Mr. WINN said he had a large number of letters from various shareholders.

A SHAREHOLDER: How are the calls unpaid?—Mr. WINN: There are few unpaid—not 60*l.*

Mr. T. ANALL (Redruth) moved that the 5156 unissued shares be first offered to the shareholders, and if not taken by them, placed for disposal with Mr. S. James.

Mr. HARRIS-JAMES said they would be in a peculiar position if Mr. James could not place them, and

Mr. DOBELL moved that the matter be left in the hands of the committee.

Mr. ANALL objected to this course, contending that three years ago the committee were empowered to act in the same way, but had done nothing.

Mr. WINN said he had done his utmost to get the shareholders to take these shares.—Mr. ANALL: There is no doubt about that.

Mr. WINN: Then some turn round and say—why not send tin to the market, and then we will take some shares.

Mr. ANALL said it was impossible to send tin into the market by simply saying so. Capital and machinery were required to do that. He had gone thoroughly through New Terras several times. He had inspected it. He advocated for the commencement the erection of an engine that would crush 100 tons a day. And he thought if they would refer to his report they would see he calculated, on a produce of 30 lbs. of stuff, stamping 100 tons a day, they would make a profit of 20*l.* per day. Thus, 600*l.* profit per month would mean a profit of 8000*l.* a year, or on 25,000*l.* capital, there would be an interest of 35 per cent. Sufficient capital was alone required. The lode was there; everything was there.

Mr. DOBELL thought it would be well to leave the matter in the hands of the committee.

The suggestion was adopted, and the business proceedings closed. The shareholders dined together, Mr. SYMONS again presiding. Before commencing the toast list, letters of regret were read from a number of shareholders, among others from Colonel Beresford, who suggested debentures and preference shares, saying he would himself take 400*l.*; Mr. Edward Forster, Leeds; Mr. Sydney Billing, London; Dr. Garland, Rev. E. A. Telfer; Mr. W. H. Baxter; Mr. R. Hay, Newcastle; Mr. Hall, Peterborough; Mr. T. Williams, London; Mr. Bourne, London; Captain Southey; Mr. A. B. Elliott, Rochdale; Captain Bullock, Newquay; and Mr. Charles Sells, London.

The CHAIRMAN proposed "Success to the Mine." He remarked that the shareholders were to be congratulated on the position of the property. Discoveries had been made, and he predicted great results from what had been discovered, when such discoveries had been properly developed. As soon as their machinery was in order they would be in a position to return such a quantity of tin as would enable them next time to declare a dividend. (Hear, hear.) He was himself satisfied there was no question as to the concern paying. All they wanted was to get their machinery in order, so that they might get the tin ready for the market. If they only got the money they would go on successfully with the mine for a long period. He was glad to meet them there that day, and he was only sorry they were not prepared to give the shareholders a dividend; but he again said he trusted they would have a dividend by the next meeting. There was never a more devoted man than their manager, and he deserved their gratitude for the economical way in which he had done everything in connection with the property. The manager himself held a large part of the mine, and in their secretary they had a man who was equally industrious. (Hear, hear.)

Captain EADE, responding to the toast of his health, said they had a large lode, and they were putting in a powerful engine which would enable them to pump and stamp. He should recommend that as soon as the engine was fixed sinking to the 50, and have another level, so as to have enough tinstuff to keep the mine constantly working. Perhaps the question might be asked, how had they been so long in doing the work? One reason was that the past five or six weeks had been very unpropitious for outdoor work, and the progress of the work had been greatly retarded on that account. He hoped they would now make greater progress. (Hear, hear.)

Captain POOL had great hopes of the property. He believed there was a vast quantity of tinstuff almost in sight. With an average produce of 30 lbs. of tin to 1 ton of stuff a large profit should be made. At the last meeting it was hoped they would have a dividend that day, but, unfortunately, that had not been the case. But this was not for want of tin, but for the want of the means to provide the necessary machinery. He favoured Captain Eade's suggestion as to sinking deeper when the engine was in working order. He had been connected with mining since he was six-and-half years of age; he had travelled through 21 States in America, and been elsewhere. He had inspected all sorts of mines, and he would say they had one of the greatest and grandest mines in the West of England. (Applause.) That was his opinion; they had this wonderful and extensive lode, traversing the whole length and width of their property, and it varied from 30 ft. to 40 ft. in width. There were seven or eight other lodes in that sett which they had not touched at all. He assured them he had ascertained this with his dowsing-rod.

The CHAIRMAN explained that the old company's failure in the

mine was due to nearly all the money being spent before they came to develop the sett. They put the stamping-mill in the wrong place, but despite these errors they returned from 8000*l.* to 10,000*l.* worth of tin.

Mr. DOBELL, in reply to the toast of his health, wished the company success. He claimed that there must be some reform in the Land Laws. He knew, as an actual fact, that when the lease of New Terras was taken up the lord demanded five years' rent to be paid in advance. He demanded 100*l.* before the field could be touched, and that 100*l.* was, to his knowledge, the freehold value of that field if it had been purchased.

Mr. HARRIS-JAMES: Previous to that it was bought by the old company. (Hear, hear.)

Mr. DOBELL remarked that people might round, and say they entered into this agreement, and they had to make the best bargain they could. Ought the lord to be able to make such a demand? ("No!") Ought not the law to admit that a body of gentlemen were entering into a speculation trying to get metal which would be of value to mankind? (Hear, hear.) That such gentlemen should be assisted by the Legislature? (Hear, hear.) Therefore, he contended that in New Terras they had an instance in favour of Land Law Reform. (Applause.) He knew the minimum rent was not large, that the dues were fairly moderate, but should the lord have the first claim on the mineral raised from the bowels of the earth. ("No!") The shareholders and miners should have first claim in this respect. In regard to mining in that county, they had a fair case for Land Law Reform. He was in favour of dues being paid out of profits. Then, again, they had all sorts of restrictions as to what they must do. They had a large extent of ground granted them for mining, but they must not build a stack here or an engine-house there. He contended that if the lord granted a sett the adventurers must be at liberty to put whatever erection was necessary wherever they pleased. Of course if they disturbed the soil they must pay a certain rent for it. But there should not be such restrictions as were in force. They were told they must not build here or there as it would obstruct a view, or be near a game preserve. (Laughter.) He said that wherever metal was found to exist that nothing whatever should be placed in the way of the proper development of that piece of land, for they had to consider the good of the general community. He would ask them, as reasonable men, if, but for the fact of Mr. Conybeare coming into the county, they would have had a meeting of the magnates of Cornwall to discuss mining legislation? ("No.") He also said no. It was only by agitation that they could get these reforms. And the sooner they had the reforms they desired the better.

The CHAIRMAN supported Mr. Conybeare's Bill, and

Mr. ANALL asked how was it their county members had done nothing in this respect for so many years, until the matter had been mentioned by Mr. Conybeare? He thought Mr. Conybeare was the man who should represent them in Parliament.

Mr. HARRIS-JAMES and Mr. WINN also spoke, expressing their firm belief in the permanent success of the property.

WHEAL SISTERS.

A meeting of this company was recently held on the mine. From May 16 to September 5 4384*l.* was spent in wages; 30*l.* doctor's pence; 87*l.* interest and commissions; 8*l.* employers' liability; 8*l.* Stannary assessment; 34*l.* stamps; 1506*l.* merchants' bills; total, 6057*l.* On the credit side, 101½ tons of tin were sold from May 26 to October 13, for 5053*l.*; 51½ was received for carriage; (average price, with carriage, 50*l.* 7s. 11d.); 47*l.* for tin levies; 47*l.* for sundries; 14*l.* discount on merchants' bills; 7*l.* on relinquished share account; total, 5218*l.* This leaves a loss on the five months' work of 839*l.* Add this to adverse balance at last account, 1314*l.*, and there is a total indebtedness of 2153*l.* Deduct a call of 7s. per share, made May 27, 1283*l.*, and there is a present debt of 870*l.* To meet this a call of 5s. per 3847th share was made, with a discount of 5 per cent. if paid before November 14, the same interest to be charged on all calls after that date. The bankers' pass-book shows 852*l.* due to the bank. In Wheal Mary the principal work is at the 240 and 250 fm. levels, east and west of engine-shaft. The 250 west is worth 10*l.* a fathom, but costs 5*l.* a fathom and 10s. in 1*l.* to drive. The same level east is, just at present, poor, and costs 8*l.* a fathom and 10s. in 1*l.* to drive. In Trenchum Hollow's flat-rod shaft is sinking below the 200 fm. level, where it is worth 8*l.* a fathom for the length of the shaft (12 feet), and is sinking at 14*l.* a fathom and 10s. in 1*l.* The 200, east and west, and the 190 east are being driven. The lode in the 40 west of Ambrose's engine-shaft is worth 4*l.* a fathom; driving at 4s. a fathom and 10s. in 1*l.* There is a large quantity of unexplored ground between this level and the adit, from which Capt. W. Rosewarne and his colleagues—Messrs. John Gilbert, Simon Thomas, and Nicholas Richards—expect to get an increased quantity of tinstuff. The 200 fm. level is being driven east of Fox's shaft on the north and south part of the lode. In the 170 east of this shaft the lode is worth 8*l.* per fathom, driving at 50s. and 10s. in 1*l.* In Wheal Kitty the lode in the 60 fm. level east of Giesler's engine-shaft on South Russoe lode is worth 5*l.* a fathom; driving at 60s. and 10s. in 1*l.* The 250 fm. level, west of Wheal Mary engine-shaft, was driven on the south part of the lode, which was productive in the 240 level over, but in this level there was no tin until they struck the north part of the lode. Driving east on the north part west of shaft, at the 250, tribute ground is being laid open. At the intersection of the 240 there is a lode 9 ft. wide, working on tribute by six men at 15s. in 1*l.* In consequence of our driving so many fathoms on the south part of the lode at the 250 before reaching the productive ground, our returns have been lessened from the Wheal Mary part of the mines during the last five months; but, looking at the encouraging position of the mine—in the bottom of Wheal Mary and other places in Trenchum, we hope from this time to increase our returns of tin. We have about 395 persons employed on the mines.

THE ACCIDENT AT THE CHANCELADE QUARRIES.—The Paris correspondent of the *Daily Telegraph* gives the following particulars of this accident:—On Sunday afternoon the hill which overhangs the quarry fell in several places with a terrific noise. Ten houses occupied by the families of labourers were buried under the hill, their inmates—a number of women and children—being crushed amid the ruins. It being Sunday, only a few quarriesmen, about seven or eight, were at work, and these, with their horses, wagons, and cranes were all involved in the general destruction. The quarry on week days employed about 500 workmen. Soldiers and country people on learning the nature of the catastrophe which had so suddenly occurred hastened to the place with shovels, and worked vigorously amid the fatal mounds which the landslide had raised in all directions, and whence the cries of the smothering victims feebly proceeded from time to time. A woman and child were taken out in one place just alive. The corpse of another woman came immediately afterwards to light. A man and a woman, with their child, were walking near the quarry at the time of the landslide. The two adults were crushed to death by an avalanche of falling rocks and stones, but the child, strange to say, was saved by having been lifted off its feet and blown several yards away by the outrushing air. It is uninjured. The fissures created by the landslide are highly dangerous, and more slips are feared. Several hundred men are out of work owing to the destruction of the quarries. A woman whose cries were heard by the excavators for several hours on Sunday, was taken out alive at an early hour on Monday morning. She was in a state of great terror, but has received no serious injuries. Her child was killed by her side. Four workmen are still among the ruins, and are believed to be dead. Subscriptions have been raised for the families of the victims.

The Cleveland ironmasters last week, in replying to a communication from the blast-furnacemen, intimated that it was impossible to consider anything that would raise in any degree the cost of making pig-iron. The circumstances were such that it was impossible to delay the obtaining of a reduction in wages, and with this view notices were posted up at the blast-furnaces in the Cleveland districts on Saturday last to terminate all wage contracts on November 14.

PIERREFITTE MINING COMPANY (LIMITED).

The fifth ordinary general meeting of shareholders was held at the offices, Great Winchester-street, on Wednesday,
Alderman Sir THOMAS DAKIN in the chair.

Mr. J. R. COOMBS (the secretary) read the notice calling the meeting.

The CHAIRMAN said this was not a pleasant occasion for the directors to meet the shareholders. This was the fifth annual meeting. For a long time after they commenced working the mine promised to be very successful, but with the proverbial uncertainty of mining operations, combined with the low price of lead, the company arrived at a position in which he had to warn the shareholders at the last meeting a year ago, that if some improvement did not take place they would be called upon to pay some subscription, and to raise some amount to carry on the mine. He remembered that at that meeting he distinctly stated that the directors and one shareholder had mainly provided the capital to carry on the work, and he expressed the hope that in future the shareholders would in any unexpected emergency do their share towards finding the capital to carry on the mine. In the year 1883 the south lode produced 29,577 9s. 10d. of ore, but at the time of the last meeting the directors were apprehensive that the productive power of that lode might not continue, and therefore he thought it desirable to warn the meeting that the directors who had willingly found the money to carry on the work would look to the shareholders to come forward and help with capital in case of emergency. The directors and the one shareholder to whom he had alluded had found the money, believing, from what was stated by experts, that there was prospect of great wealth in the mine. The first paragraph in the report informed the shareholders that the crisis had now arrived. From the commencement up to the present time the mine produced upwards of 63,000l. in money, and, therefore, the directors had reason to believe that they had a valuable property. They were also encouraged by the report of the manager out there to believe they had a very valuable property. He mentioned this to show there was every reason to believe that there was value in the mine. But as time went on the mine did not produce the returns which were expected; and when in October the directors received a report from Mr. Jeffree, the manager, to the effect that there were still large quantities of stoping ground standing in the south mine, but the ore at present in sight was not rich, and would not pay the cost of extracting, the directors saw at once that they must take some further steps with regard to carrying on the mine, possibly by means of rock-drills, but the directors could not see their way to more than merely pay the current expenses at the mine and in London, and they could not meet the interest on the debenture loan outstanding, some of the bonds of which were to be drawn that day. As far as the working of 1884 was concerned they had a gross profit of 2800l., less interest, which reduced it to a deficit of 392l., and, therefore, they worked in 1884 at a loss of 392l. In 1885 there was a gross profit of 2576l., but deducting interest on the debenture and loan there was a deficit of 374l. Therefore, for the last two years they had not been paying their way, and looking to the reports from the mine he did not see how they could continue operations without some help from the shareholders, and some consideration on the part of the debenture-holders. He went on to refer to the drawback which the company had suffered from the decreasing price of lead, which was 20l. per ton when the company commenced operations, but was now down as low as 11l. or 12l. per ton. There was one very favourable feature in connection with the ore of this company's mines, and that was that it contained a large amount of silver, and this it was which had really enabled them to carry on operations up to the present time. The directors, as he had said, had advanced money, and had worked without fee or reward for a long time past, and now they must look to the shareholders and the debenture-holders to give some aid to enable the operations to be carried on. They wanted about 10,000l. There was owing for debentures, 2800l.; on interest account, 1590l.; and loan to directors altogether about 5000l., and if they raised 10,000l. there would be a balance left to carry on the works. The debenture-holders had the first right of property in the mine, and therefore steps must be at once taken to protect the property and arrange with the debenture-holders. He had put the matter very plainly before the shareholders, and it was for them to decide what they would do, but if the shareholders came forward and helped the directors, and if the debenture-holders withheld their claim, then the directors would do all they possibly could to push on the works and take advantage of the improvement which had been strongly intimated to them during the past year. The last paragraph in the report put the matter plainly; it stated:—"A meeting of the debenture-holders has been held to promote this object, and, taking into consideration the critical condition of the company, the directors strongly advise the shareholders to contribute at once the sum necessary for the development of the mines, which they think would not exceed 4000l., or 1s. per share on the capital issued. If this be done, the debenture-holders may probably be induced not to insist on payment of the amounts due to them for drawn bonds and interest, and to refrain from enforcing their undoubted legal rights. Hitherto the directors have found the money to carry on the works, and their advances to the company, with interest, on this account amount to nearly 5000l., to which they do not intend to add; hence they consider it their duty to the shareholders to point out most distinctly that if the amount required be not forthcoming at this critical moment collapse will be inevitable, which will be beyond their power to avert, although they are so largely interested as shareholders. It is, therefore, their earnest desire to provide against such a contingency." In conclusion, the Chairman moved the adoption of the report and accounts, and said that later on he would move a further resolution which would be sent to the shareholders if carried.

Mr. BULLIVANT seconded the motion, and said they were in this position. The mine had been working satisfactorily, and had more than paid its way, but the debenture interest had swamped them, and there were also the debentures to be paid off every year. The shareholders must decide whether they would find the money to protect their property, and push on the working, and said that what the shareholders should do was to take up the 10,000l. of second debentures.

Mr. FRANKEL was willing to take up his share, but he wanted the stipulation made that the 4000l. or 5000l. which would be in hand if 10,000l. were raised should be employed entirely as working capital for the mine.

The resolution for the adoption of the report and accounts was then put to the meeting and carried unanimously.

Some little discussion then ensued with regard to the rights and position of the debenture-holders and some smaller matters of detail, and also regarding the form of the resolution which should be sent to the shareholders; and, on the motion of the CHAIRMAN, the following resolution was eventually passed:—"That, as advised by the directors in their report, the shareholders be invited to subscribe the sum of 5000l., in order to continue the working of the mines, on the understanding that the debenture-holders do not put in force their legal rights for 12 months, and that such subscriptions be paid to the company on or before the 10th November next."

The retiring directors, Mr. A. L. Jeffree and Dr. J. Rutter, were re-elected; the auditors, Messrs. Tarquand, Youngs, and Co., were re-appointed, and the annual drawing of the debenture bonds then took place.

A vote of thanks to the Chairman and directors closed the proceedings.

About two years ago, the North-Eastern Railway Company were interviewed by certain representatives of the pig-iron makers of Cleveland with the view of obtaining some reduction in the rates for the carriage of ironstone, limestone, and coke. A reduction, they urged, was necessary owing to the depressed state of trade, and a rebate, or 10 per cent., was allowed. On Saturday last another deputation of the trade waited on the general manager to endeavour to obtain a further allowance, and we understand a reduction equivalent to a rebate of 13 per cent. on the original charges has been made.

ASTON COAL AND IRON COMPANY (LIMITED).

The ninth ordinary general meeting of shareholders and debenture holders of this company was held at Colmore-row, Birmingham, on Thursday.—Mr. JAMES TREES presiding.

The report of the directors showed that the result of the year's operations was a profit of 897l., which, added to the undistributed balance of 340l. from last year, amounted to 1237l. This sum it was proposed to appropriate as follows—466l. in payment of interest at the rate of 5l. per cent. to the preferred debenture-holders, and 594l. in payment of interest at the rate of 10s. per cent. to holders of the "A" debentures, leaving 176l. to be carried forward.

The CHAIRMAN said he was extremely sorry that they had not a better balance-sheet, but the meeting was quite aware of the great depression which the district was labouring under, and there were very few of those present who were in business who could not say that in the coal and iron trades last year was one of the worst ever encountered so far as profits were concerned. During the year there had been an addition of 3076l. to the capital of the company, owing principally to two new seams having been got ready for working, and also to the colliery having, from beginning to end, had to be remade, new pumping-engines having been put down, a house and stables erected, &c. The new seams had not been worked yet, there having been no demand. The bad debt account stood higher than it ever had done before; but it related to two firms only, and the directors thought themselves fortunate in having got out as well as they had.—Mr. S. LLOYD seconded the motion.

Several SHAREHOLDERS expressed themselves as satisfied that under present conditions any dividend had been paid.

Mr. WENHAM said that to his mind an improvement depended upon the next elections. ("Oh.") If they got in a good strong Tory Government—"No, no," and cries of "We can't do with that"—which would deal with the question of fair trade and the currency, he thought that they might hope to see a very different state of things.—(Alderman BAKER: Our profits will be gone then.)—There was no reason why this colliery should not earn 10,000l. or 20,000l. a year, and that would mean a dividend of 5 per cent. all round. If they went on as they had done in the past, he was afraid it was all up with them.

Mr. S. LLOYD, one of the directors, said that he did not agree with his friend as to politics. (Hear, hear.) He would tell them what to his mind was a much more practical thing. There was no district which suffered so much as the Midland from the gigantic carrying monopoly. (Hear, hear.) On the Aire and Calder Canal, in Yorkshire, goods were carried for 1-32 of 1d. per ton per mile. What they wanted in the Midlands was steam navigation from the Thames through the Black Country and the Potteries to the Mersey, to join the Manchester Ship Canal. Steam power on water would draw six times the weight of steam power on railways.

The motion was adopted, and the directors were re-elected, after which the proceedings terminated.

THE PURCHASE BY THE MIDLAND RAILWAY OF BELGIAN SLEEPERS.

Steelmasters the kingdom over will learn with the greatest interest of an important correspondence which has just passed between the Chairman of the Staffordshire Steel and Ingot Iron Company, Wolverhampton, and the general manager of the Midland Railway Company, upon the question of the order for steel sleepers recently placed by the Midland Railway Company in Belgium. Mr. Alfred Hickman, the Chairman of the Staffordshire Company, pointed out to the directors the desirability of "encouraging and assisting their own customers at a time of unexampled depression, rather than sending orders abroad to firms who could by no possibility contribute to the revenues of the railway." Mr. Hickman remarks that he would not ask for any preference over the foreigner, but only that English steelmasters should have an opportunity of competing on equal terms. The reply from Mr. John Noble, dated from the general office of the Midland Railway Company, at Derby, is as here—
"Dear Sir,—It is quite true that the Midland Company has ordered a sample lot of steel sleepers from Belgium, but the quantity is not 10,000 but 5000. We applied to several houses in this country for tenders, and found that they had not at present the necessary plant for manufacturing them, and as it is uncertain whether we shall adopt them generally in place of wooden sleepers or not, they naturally ask us a sufficiently high price for the article to cover the cost of the new plant which they must have put down. The Belgian firm has the plant already. My directors, therefore, thought that as the quantity required is, as I said before, very small, about 250 tons, and for trial only, it was better to let the Belgian firm supply them than to pay a price for the article very much in excess of that which the Belgian house charges. You may take it for granted that we do not like sending orders out of the country. If the experiment of using steel sleepers is successful, our consumption will be large, and I am sure there are plenty of houses who will then be willing to put down the necessary plant at their own cost, without increasing, by some special addition, the ordinary price of the manufactured article. I will request our stores department to send you a form of tender when we are in a position to give any further orders.—I am, yours faithfully, JOHN NOBLE." We have reason to know that a second form of tender issued by the Midland Company is now reaching the hands of the British steelmasters.

THE GREAT EASTERN STEAMSHIP.—On Wednesday, Mr. Charles W. Kellock submitted this celebrated steamship to auction at Lloyd's Captains' Room, Royal Exchange, by order of the High Court of Justice. In mentioning at the outset the particulars of sale, he said the vessel was of 22,927 tons builders' measurement, 18,915 tons gross and 13,344 tons net register. Having reminded those present that she was built from designs and under the personal superintendence of the eminent engineer, Isambard Brunel, by the celebrated firm of Scott, Russell, and Co., in 1858, Mr. Kellock stated that her paddle engines, which were 1000 horse-power nominal, were by the last mentioned firm, and they had recently been re-packed. Her screw engines, which were 1600 horse-power nominal, were by James Watt and Co., of Birmingham. These engines and boilers had recently been thoroughly repaired and cleaned. The Great Eastern carried an enormous cargo, and had great space for first, second, and third class passengers; and she attained a very high rate of speed. Her dimensions were—Length, 179-6 ft.; breadth, 82-8 ft.; depth, 60 ft. She was now lying at Milford Haven. He next read the conditions of sale, according to which the highest bidder was to be the purchaser, but the sale was subject to a reserved bidding, which had been fixed by Mr. Justice Chitty, and the sellers reserved a right to bid. The vessel was sold with all belongings to her, with all faults and defects, without any allowance for deficiency, conditions, or errors of description, and to be at the purchaser's risk and expenses from the day of sale. In reply to questions, Mr. Kellock stated that the amount of the insurance policy on the vessel was 40,000l. It would expire on the 20th proximo. The premium was 5s. per cent. The bidding then commenced with an offer of 10,000l. which excited some amusement. The next offer was 15,000l., on which advances of 1000l. each were made up to 20,000l., followed by bids of 20,500l., 21,000l., 21,500l., 21,600l., and 22,000l. There being a pause at this amount, Mr. Kellock reminded them they had not yet reached 11. a ton. The next offers were 22,100l., 22,200l., 22,300l., and 22,350l. No fewer than 47 bids were subsequently made, beginning with 22,400l., and increasing by amounts of 250l., 200l., 100l., and 50l., until the sum of 26,200l. was offered, at which the vessel was disposed of to Mr. Frederick de Mattos, a City merchant. A few days ago, it may be stated, a motion was made before Mr. Justice Chitty, on behalf of the liquidator, for the sanction of the Court, to the acceptance of a private offer for the vessel of 30,000l. Certain of the mortgagees, however, opposed the motion, and Mr. Justice Chitty refused his sanction. It may be mentioned that just four years ago, on the 19th of October, 1881, the Great Eastern steamship was offered for sale by Mr. Kellock, as reported in the *Times* of the following day. On that occasion, it may be interesting to state, the first bid made was 20,000l., while the last offer was 30,000l., at which the vessel was withdrawn.

THE DISCOVERY OF CALIFORNIAN GOLD.

ADDRESS DELIVERED BEFORE THE SOCIETY OF CALIFORNIA PIONEERS, SAN FRANCISCO, SEPTEMBER 9,
BY JOHN S. HITTALL.

MR. PRESIDENT AND FELLOW PIONEERS: At this celebration by our society of the 35th anniversary of the admission of California as a State into the Union, in accordance with the invitation given to me by the committee of arrangements, I am to address you in reference to the discovery of the gold deposits of the Sierra Nevada. The subject is appropriate for the occasion, because of the recent death of Marshall, and of the comments made upon it by many newspapers on both sides of the Continent. I shall give a narrative of the main facts of the discovery, consider to whom it is due, and his measure of credit, and say something about the manner in which he has been treated by the Government and people. The end of a notable man's life—and Marshall was so notable that his name is an imperishable part of the history of California—makes an epoch in local events. It revives and strengthens public curiosity about him, and calls for a review of his achievements. People then take an interest in biographical details which, at other times, would seem trivial. Then it first becomes possible to close the account of his credits and discredits, and state the final results with the certainty that they will not be changed by any subsequent action on his part.

A native of New Jersey, born in 1812, James Wilson Marshall had a mind, active but not very well balanced, a moderate education, a healthy, strong, and well proportioned body, much energy and industry, and the handicrafts of carpenter and wheelwright. When a young man he moved to Missouri, where he spent several years before starting in 1843 for California by way of Oregon. He spent a winter in the valley of the Willamette, and in the spring of 1845, continued his journey by land, until he arrived at New Helvetia, which was then the chief settlement of white men in the Sacramento Valley, situated at the point where immigrants coming to California by way of the Humboldt river first reached the navigable waters of the Pacific, and where boats ascending the Sacramento river from the bay found the first house and land above the level of frequent winter floods. At this advantageous position John A. Sutter, a native of Baden, but of Swiss parentage, had established himself and erected several adobe buildings, surrounded by an adobe wall. The Americans generally called the place Sutter's Fort. The proprietor had made friends with the surrounding Indians, and all, within many miles, considered themselves his servants, and were ready to work for him in peace and fight for him in war. He had herds of horses and cows; he cultivated much land, mostly in wheat, and he had a store where all the staple articles consumed in the vicinity could be purchased. He was the earliest settler in the Sacramento Valley, and for more than 10 years was its richest man. Marshall sought and found employment at New Helvetia as a carpenter, and remained there till the outbreak of the Bear Flag insurrection, when he joined the Americans in arms until they disbanded to accept the welcome authority of the United States. Then he served in Fremont's battalion until the spring of 1847. Returning to New Helvetia he found that Sutter was anxious to erect a saw-mill. For more than a year the only supply of lumber at the fort had been furnished by the whipsaw of Baptiste, a Frenchman at work in the Sierra Nevada about 50 miles away; but it was unequal to the demand for the completion of a flour mill, which Sutter had commenced at Brighton on the American river. This was to be finished before the harvest of the next year, when, it was confidently expected, a large immigration would arrive by land, and the number was to increase every year. The new comers would generally settle in the Sacramento Valley and obtain their supplies at New Helvetia. But even if they should not be so numerous as was anticipated, there would always be, as there had been, a good market for flour, which Sutter could furnish as cheaply as any rival, since he had the land, the labourers, the oxen, and the ploughs, and he would even have the mill. To him, in June, 1847, Marshall made a proposition to become his partner in the saw-mill enterprise, taking charge of the construction and management. The offer was accepted, and one stipulation of the agreement was that if California should remain under the dominion of Mexico, land at and near the mill should belong to Sutter, who had been naturalised under the Mexican law; but if the territory should finally become part of the United States, then Marshall, as an American citizen, should be the proprietor. The lumber produced, or its price, was to be shared between the partners, no matter in whose name the title should stand. This stipulation was, perhaps, suggested by Sutter, who feared that his property, as a Mexican citizen, would be confiscated by the conqueror, if the United States should retain the country. The traditions of European warfare, as known to him, did not lead him to anticipate the generous clause of the treaty of Guadalupe Hidalgo, promising full protection to the property rights of the Mexicans in California; and if he had anticipated it he could scarcely have foreseen how its obligation would have been disregarded. The enterprise was to be soon commenced, so, without delay, Marshall started out to find a suitable place, which must be in the mountains, for the wood of the valleys was crooked and brittle. By Sutter's advice he first went to the canyon of the Cosumnes, but an examination of it proved that the water-power needed could not be procured there without great expense. He crossed the intervening ridge to the American river, and there at Coloma found the desired combination of timber, power, and convenient accessibility by wagon from New Helvetia, which was to be the only market for the lumber. Large yellow pine trees were abundant in the vicinity; a valley 1 mile wide and 1 mile long offered a route for a race with sufficient fall, and a site for the mill high enough to be secure from floods, and a distance by wagon route of not more than 50 miles from Helvetia, which was near enough for the purpose. The valley and the gentle slopes of the surrounding hills contained much tillable soil, which has since come into cultivation, and afterwards Coloma was one of the first places in the Sierra Nevada to become noted for its vineyards and orchards. If instead of a site for a saw-mill, Marshall had been seeking a beautiful mountain home accessible by wagon from New Helvetia, he could not have made a better choice. Among the numerous pleasing productions of the landscape art in our State, one of the most interesting, as well as most truthful to Nature, is Charles Nash's view of Sutter's mill, made from a sketch taken in 1851, by his brother Arthur, and painted in duplicate. Many of the features of the scene, including the form and colour of the hills, the character of the vegetation, and the bright mountain sky, are the same now as they were 36 years ago. We have no direct evidence that Coloma had ever been seen by any white man before Marshall. It is not on any route of travel used then or since, across the Sierra from the mouth of the American river. Before 1847, other Americans, possessing some skill as lumbermen had gone from New Helvetia, into the mountains searching for a saw-mill site accessible by wagon, and had returned with the report that none could be found. The credit of the discovery and selection belong exclusively to Marshall.

The work began in August. Marshall had taken with him seven white men, including P. L. Wimmer and John Scott, besides 10 Indians from the fort. The only white woman in the party was Mrs. Wimmer, who was to cook for the white men. The little colony was isolated. It had no visitors or excitements. All the white men were toilers, and their relations with the Indians of the vicinity were most amicable. Their work advanced steadily, until the 19th of January, 1848. The mill had been erected, the race had been dug, and the water had been turned in. The tail-race was, however, not deep enough; the water, instead of running away from the wheel, backed up under it, and thus diminished the power. The tail-race could have been deepened by shovelling, but Marshall thought it would be cheaper to let a strong current run through and wash out the sand and gravel, and for this object the water was turned on at night. No note was taken of the date at the time, but afterwards Marshall thought it was the 19th, and certainly not before the 18th, nor after the 20th of January, when walking along the bank of the tail-race, to see what effect the water had had during the night, his attention was fixed and his curiosity excited by some particles of

bright yellow colour in the race, where the water was, perhaps, 6 in. deep. He picked up one; it weighed about 1-40th oz., worth 50 c., and was of a metallic nature. He wondered whether it was gold; he had read that pyrites is the only mineral resembling gold in a state of Nature, and that it can readily be distinguished from the precious metal by the want of malleability. He put his little specimen on a cobbles, and beating it with another stone saw that it was highly malleable. Of an excitable disposition, and much influenced by first impressions, he was fully convinced that he had found gold, and anxious to communicate the good news to others. He was alone at the time, and he hastened back to the mill and told William Scott, the first man whom he encountered, of his luck, and the others were soon afterwards informed. Mrs. Wimmer happened to be boiling soap that day, and she threw the piece into her soap pot, and it was afterwards tried with vinegar; but as neither test led to the formation of any verdigris, the general opinion in the camp, at first unfavourable to the gold theory, turned in its favour. Every day Marshall became more sanguine, and every day the men walked along the race to pick up the gold exposed by the washing of the water, and in a few cases loosened a little of the gravel by digging. On the fifth day after the discovery, having collected several ounces of specimens, Marshall, too much excited to work quietly at a saw-mill, started off on horseback to tell the good news to his partner. Sutter tested the metal with nitric acid, weighed it in and out of water, declared that it was undoubtedly gold, and expressed his readiness to go the next day to the mill. Then for the first time he saw Coloma. He looked at the race, picked up some of the gold, and requested a present to keep the discovery to themselves. He feared that an excitement would disturb the business of the saw-mill, and not only deprive him of the profits which he hoped for from it, but also prevent the completion of his flour-mill, to which he attached great importance. He thought that the lumber for his other mill could be sawn within six weeks, and for that brief period, at least, they ought to keep the secret. All promised, at least none made any objection to accede to his request, nor was there any good reason why they should not. Sutter had been a kind employer to them, and it would have been unfair to leave his enterprise incomplete, for the mill was not yet in running order. Besides, not one of them had any experience in gold washing, or knew the extent of the auriferous deposit, or could clearly foresee a profit for himself in the abandonment of his occupation, with its regular and certain wages. The men then at the mill, and hired by the firm of Sutter and Marshall, were Charles Bennet, William Scott, P. L. Wimmer, James Bargee, Alexander Stephens, James Brown, Ezekiel Parsons, Henry W. Bigler, Israel Smith, and Wm. Johnston. These, with Marshall, were the only white male adults, and so far as known all are now dead except Mr. and Mrs. Wimmer, living at San Diego, and Mr. Bigler, at St. George, Utah. Sutter returned to New Helvetia and the saw-mill work at Coloma went on as before, though every day a search was made in the race for gold. It had no definite market value yet, but as it accumulated the men began to think of using it in making purchases. About the middle of February one of the mill labourers went to Sutter's Fort, and offered it there as money to a trader, who at first thought his customer was crazy, and at last, having consulted Sutter, accepted the new currency. About the end of February, when the six weeks of secrecy solicited by Sutter had nearly expired, Charles Bennet went to San Francisco, which was already the chief commercial centre of the territory, for the purpose of learning whether the Coloma metal would be accepted there as gold, and if so, what was its worth by the ounce. The watchmakers said it was gold, and they bought it. Of the price paid to Bennet we have no information, but then, or not long afterwards, Mr. Russ, after whom the Russ House was named, obtained dust at \$4 an ounce, though it was worth about \$19 in New York. Before Bennet had disposed of his gold in San Francisco, he met Isaac Humphrey who had been a placer miner in Georgia. Immediately upon seeing the Coloma specimens, he declared that their large size and the circumstances under which they had been collected implied that the diggings must be rich and extensive. He tried in vain to induce some of his friends to go with him to the new gold field, but they had no faith in his opinion, so he and Bennet went alone. On the 7th of March they arrived at Coloma. The work at the mill was going on as usual. Nobody there was engaged in mining or knew how to use a pan or rocker. The next day, having tried several places with a pan and got good prospects, Humphrey made a rocker, and began to wash the auriferous gravel. The labourers at the mill had heard that he was an experienced gold miner, and they watched him with interest. The implements required were made so easily, the methods of procedure so simple, and the results so large that the mill work was very much disturbed, but was not abandoned, partly because Marshall had the only provisions, wagons, horses, oxen, tools, and other necessities of life; and it was foreseen that if there was much mining there would be a demand for lumber to make houses and fences. On the question of the richness of the gold deposit and its influence in attracting people Humphrey spoke emphatically. He said there had been great excitement in Georgia, but that State had no placer that approached Coloma in richness. Four days later another man who had had experience as a gold miner made his appearance. This was Baptiste, the Frenchman, long a resident in Mexico, who for the last two years preceding his visit to Coloma, had been employed by Sutter to saw lumber by hand. He agreed with Humphrey that the diggings were wonderfully rich, and he, too, at once began to work with a rocker. The zealous application of these two men to their toil, each working by and for himself, was a strong confirmation of their opinions as expressed to all inquirers, and thus gold mining started in the Sierra Nevada, spreading slowly at first, but after a few weeks filling the whole Territory with its excitement.

In the beginning of the year 1848 California had two newspapers, both weeklies, published at San Francisco, the *California* and the *California Star*. The former made the first printed mention of the discovery on the 15th of March in a paragraph of a few lines, stating that gold had been found at Sutter's Mill, and that a package of it worth \$30 had been taken to New Helvetia. The reporter had evidently not seen Bennet, who arrived at the bay a fortnight before, nor heard of the dust sold there by him. The *Star* of March 18th followed its rival in mentioning the discovery, but gave no additional information, nor was any worthy of note obtained before the middle of April, when the *Star* said that its editor was about to take a trip to the country, and would probably report his observations on his return. Although the newspapers did not say so, orders for tools and provisions for the placers must have arrived at San Francisco, and probably letters from Humphrey and others, urging friends to come and share the wonderful harvest of the precious metal; and the recipients of this advice, hesitating to close their shops and leave their families, thought it would be well to have journalistic confirmation of the reports. Some of the messages from Coloma must have come from Mormons—most of the men hired by Marshall were of that faith—to Sam Brannan, the chief representative of their church in San Francisco, the owner of the *Star*, and one of the leading business men of the village. In announcing his rural trip Edward C. Kemble, the editor of the *Star*, said nothing of his destination or of the gold, and his silence upon those points suggests a fear that he might be laughed at for going off on a wild-goose chase. He went to Coloma, where Sutter and P. B. Reading were with him, and they probably accompanied him from New Helvetia. He saw so little, or understood so little of what he saw, that he made no report in his newspaper of his trip or his observations, and contented himself with a simple statement in the *Star* of May 6th that the editor had returned. No expression of his opinion of the mines escaped from him until the 20th of May, when he said that a fleet of launches left San Francisco on the 14th and 15th of the month, laden with "superlatively silly" people, who had gone off with the supposition that the gold mines were so rich and extensive that 2000 men could find room to each dig 2 ozs. a day; and he added, "we believe the reputed wealth of that section 30 miles in extent all sham." How can anybody accept the doctrine of journalistic infallibility after such a mistake as that?

Kemble's blunder, however, was not very astonishing. He was a young man, unacquainted with mining. Shallow placer washing, as

then conducted at Coloma, makes little impression on the mind of the inexperienced observer, who sees a dirty man rocking dirt in a dirty cradle, into which he pours dirty water with a dirty dipper, occasionally stopping to mash the lumps of clay in the hopper with his hands, or to rake out the larger stones from the muddy mass with his fingers. The sight does not fill the aesthetic eye with delight, especially when the miner conceals the result of his toil from the spectator, as he can without difficulty, and as he nearly always does, from motives of prudence. The concentrated sand taken from the bottom of the rocker is put to one side until after the departure of any visitor who shows a meddlesome interest in other people's business, and if the diggings are good, panning out, reserved for the exclusive enjoyment of those entitled to participate in it, is the pleasantest part of the day. Many of you, my fellow pioneers, remember it with satisfaction; you delight in recalling those golden days, unsurpassed in their wonders and excitements by anything recorded in history or invented in fiction, probably never to be repeated in actual life, and ever to be preserved in fond memories while we live.

Mistakes like those of Kemble's were not limited to inexperienced men. In 1849, every auriferous district had miners who declared that all the rich ground in the vicinity had been taken up or worked out; that there was no chance for a new-comer to make a living. I have often met and heard of such men. In the beginning of October, 1849, a party of raw immigrants who had just arrived overland, going to Reading's diggings, as the placers in what is now Shasta County were called, camped for the night on the bank of Cottonwood creek, and soon afterwards saw several wagons, with six or eight men coming from the mines stop near by. After supper the newcomers went in a body to the other camp to get information. The accounts given to them were of the most dismal description. The diggings were exhausted; the miners generally were not making expenses, and were staying in the hope of finding something better; the stock of provisions was insufficient for the winter and the approach of the rainy season would render it impossible to get more before spring; the few rich claims would be worked out within a month, and starvation or great misery was inevitable. Questioning elicited much variety of opinion among the party on minor points, but they agreed that they were all disappointed in Reading's diggings, that the rich ground was small in area and all occupied, that it would be impossible to obtain additional food supplies after the rains came, and that they were glad they would get to the Yuba, where the mines were rich, before the roads should become impassable. After the immigrants had obtained the information, they returned discouraged to their own camp, and for several hours seriously discussed the question whether, though only two days from Reading's diggings, they should not turn back and seek their fortunes elsewhere. They did not doubt the sincerity, the labourious habits, or the sobriety of their advisers, but others equally as honest and perhaps as well informed, had expressed different opinions, and they determined to go on. The result was that though their labours for the first week were very unprofitable and discouraging, they soon found that the district was rich and abounded with gullies, bars, flats, and hillsides where the miner could average 2 ozs. a day. The diggings were shallow, the returns were immediate; the gold was evenly distributed over a considerable territory, water was abundant, and there was no lack of provisions, though beans, bacon, flour, dried apples, coffee, sugar, and rice, which were the chief articles of food, were sold at the uniform price of \$2 a pound. This high figure did not incommode our party—I was among them—for we had sent a wagon to Sacramento for a winter's supply, and besides could eat beans at \$2 a pound with satisfaction when we were taking out 2 ozs. a day.

[To be continued.]

THE SILVER LODES OF WAIHI, NEW ZEALAND.

It is pretty well known to the bulk of our readers (says the *Thames Advertiser*) that considerable excitement has prevailed in the Upper Thames country consequent upon rich gold and silver discoveries being made in the Waihi Plains. The discovery was made on one of the large conical hills that abound on the plains, the one in question being that in close proximity to the small settlement created by the workmen employed by the Martha Gold Mining Company, and adjacent to the Ohinemuri river. A few years ago the hill was pegged off, and a little work was done; but as the operations of the Martha Company were not very encouraging to isolated prospectors, the Rosemont Company, which then had possession of the hill in question, ceased operations, and the ground stood abandoned for years. With the advent of the La Monte furnace, and experience gained in mines that are thought to be rich in silver at Karangahake, several men there thought of the similarity of ore they had cast aside a few years before at Waihi, and the result was that a party of men went out to Waihi, repegged the hill formerly known as Rosemont, calling it the Pride of Waihi. A considerable amount of work followed at a low level, and the result was a fine body of stone met with, and driven upon both ways. The proprietors were in ignorance of its true value, but a few weeks ago they were offered a moderate sum of money, by the representative of an Auckland syndicate, and a bargain was struck. It was very speedily noised abroad, and speculators and miners were soon on the spot, and immediately recognised its value and the whole country was one scene of excitement to get on the line of reefs. It is reported to be the richest discovery yet made during this our "silver age." Some large prices have been offered for an interest in the mine, but the proprietors flatly refuse to admit outsiders, as they firmly believe that it will turn out a bonanza, as the stone now coming to the surface is very rich in gold and silver, while the assays from various independent sources all confirm its wealth. Several good sized specimens of the ore were on the Exchange on September 9; and, in a few days, it is said that the company will forward blocks of quartz in order to show how thoroughly the silver and gold permeates the lodes. In order to work the ground efficiently, and have the interests of each proprietor placed on a satisfactory basis, it was agreed on September 9 to form a company under the Companies Act, 1882, with a capital of 12,500*l.* in 25,000 shares of 10*l.* each, paid up, to be called the Rosemont Gold and Silver Company. The company only consists of seven shareholders, and one of their number, Mr. J. Friar Clarke, has been appointed manager director. Arrangements are now being made to forward 100 tons of ore to the Thames Smelting Works for treatment, and should it yield one-fourth of what "the man in the street" says, it will go a long way to prove that we have in our midst silver lodes that bid to be more remunerative than mining for gold has hitherto proved.

CONSOLIDATED ESMEERALDA (Limited).—Object, purchase, lease, or otherwise acquire, land, whether or not for mining purposes, gold mines, water rights, mineral and timber at Nevada, U.S.A., and adopt and carry into effect an agreement dated October 19, 1885, and made between Alfred E. Ann, of the one part, Mr. Thomas Parr, as trustee of the company, of the other part, for the purchase of certain land in Esmeralda county, Nevada; the purchase money being the sum of 13,500*l.*, &c. Registered by Thomas Parr, 83, Leonard-street, Finsbury, E.C. Capital 500,000*l.*, divided into 500 shares of 1*l.* each. The first subscribers (who take one share each) are—Archibald Thomson, engineer, Cazenove-road, Stamford-hill; A. Beldam, merchant, 77, Gracechurch-street, E.C.; John Mather, 8, King-street, Manchester; Thomas Parr, merchant, 83, Leonard-street, Finsbury, E.C.; J. S. Porter, merchant, 26, Mildmay-chambers, E.C.; John Gillespie, iron merchant, 35, Queen Victoria-street, E.C.; James Parr, merchant, Cecil Park, Crouch End, N. The number of directors to be not less than five nor more than 10. Archibald Thomson, William Farmer, John Mather, Apalam Beldam, Thomas Parr, and Arthur Davy, and after the allotment of share. H. M. Yerington and Alfred E. Ann to be the first directors. Qualification 500 shares.

The Commercial Bank of South Australia have received the following telegram from their head office, Adelaide:—"Dividend is declared at the rate of 8 per cent. per annum for past half-year, 2500*l.* is added to reserve fund, and 2500*l.* carried forward."

FOREIGN MINING AND METALLURGY.

The French Iron Trade remains in a weak and unsatisfactory condition. Merchants' iron is still quoted nominally at 5*l.* 8*s.* per ton. One encouraging announcement has been made—that the Orleans Railway Company has invited tenders for 21,000 tons of steel rails. The imports of iron minerals into France in the first nine months of this year were 1,074,719 tons, as compared with 1,025,970 tons in the corresponding period of 1884, and 1,232,242 tons in the corresponding period of 1883. The total of 1,074,719 tons, representing the imports of the first nine months of 1885, was made up as follows:—Belgian iron minerals, 84,778 tons; German, 398,842 tons; Spanish, 464,388 tons; Italian, 1753 tons; Algerian, 113,596 tons; and miscellaneous, 11,362 tons. The exports of iron minerals from France in the first nine months of this year amounted to 72,651 tons, as compared with 90,626 tons in the corresponding period of 1884 and 76,594 tons in the corresponding period of 1883. Prices have remained about stationary in the German Iron Trade. The Silesian iron markets continue in a weak and precarious state. The production of pig effected by the blast-furnaces of Upper Silesia last year was 409,170 tons, as compared with 384,161 tons in 1883, 381,292 tons in 1882, and 325,215 tons in 1881. To effect this production coal and coke was consumed as follows:—1881, 664,514 tons; 1882, 771,764 tons; 1883, 759,111 tons; and 1884, 798,011 tons. The average consumption of coal and coke per ton of coal produced thus fell from 2.04 tons in 1881 to 1.95 tons in 1884. During the third quarter of this year the blast-furnaces of the Dortmund district made 290,329 tons of pig, as compared with 287,816 tons made in the quarter ending June 30. Messrs. Henschel and Sons, of Cassel, have taken an order for 12 tender locomotives for goods trains at 1430*l.* per engine.

The Belgian Iron Trade has presented no very striking or new features. The depression which has so long prevailed has experienced no abatement, and has been supported with increased difficulty. Prices have remained at nearly the same level as for the last three months. It is announced that the orders for the 4000 tons of steel rails for which contracts are about to be let by the Government of Victoria (Australia) are to be given to Germany by the International Metallurgical Syndicate. On the other hand, Germany will transfer to Belgium some orders which it had secured. The Government of the Low Countries has been elaborating a Bill with a view to an increase in import duties and a reduction in export duties; this Bill will not affect metallurgical products except finished iron and steel. The report of the Council of Administration of the Quarcinelle and Couillet Ironworks and Collieries Company for 1884-5 shows that the company's ironworks and mechanical construction establishments realised last year a profit of 22,924*l.*, which was applied to meeting interest on obligations, losses on working collieries, bad and doubtful debts, and sundry redemptions of capital. The company had to compete keenly last year for orders for iron and plates, and prices showed continual weakness during the 12 months. The company's blast-furnaces consumed in 1884-5, 134,497 tons of minerals, and they produced 48,191 tons of pig of various kinds. The company's rolling-mills produced last year 35,786 tons, as compared with 32,797 tons in 1883-4. The production of last year was partly disposed of abroad. The company's construction establishments turned out last year 2879 tons of locomotives and miscellaneous machinery. At the close of June, 1885, the works had orders on hand to the value of 45,934*l.*

The Belgian Coal Trade has remained quiet, and the winter must clearly be a very early and rigorous one to ensure any advance in prices if metallurgical industry continues a prey to the depression with which it has been afflicted for some time past. Quotations have not varied upon the Belgian coal markets during the last few days. The number of trucks carrying coal and coke which passed over the Belgian State Railways in the week ending October 18 was 66 less than the corresponding number in the corresponding week of October, 1884. The German coal trade has continued to present much the same tone as for some time past. There has been no marked advance in prices; at the same time the markets have been generally firm, and partial advances recently established have been maintained without difficulty. The collieries of the Marcinelle and Couillet Company (Belgium) produced last year 368,048 tons of coal. The company also made 64,553 tons of coke last year. Coal and coke were sold last year by the company to the value of 126,626*l.* The Gelesin Company (Belgium) has disposed of its Bois d'Avroy Colliery; this colliery was worked at a profit last year. The Petit-Try, Trois-Sillons, Sainte Marie, and Defoncement United Collieries Company (Belgium) will pay, November 3, a dividend of 1*l.* 4*s.* per share for 1884-5. The Amercoeur Collieries Company (Belgium) will pay, November 1, a second dividend of 1*l.* 4*s.* per share for 1884-5. The Bessiges Colliery Company (France) will pay, October 31, an interim dividend for 1885. The Mok-tael-Hadid Magnetic Iron Minerals Company will pay, November 2, an interim dividend of 5 per cent. for 1884-5.

IRONWORKERS' WAGES, AND NORTHERN COMPETITION IN STAFFORDSHIRE.

The position of the South Staffordshire iron trade, as affected by the competition from the North of England, is becoming increasingly severe. For some while back the Northern ironmasters have been sending plates, angles, and tees into Staffordshire at much under the price which native makers can accept. Now the competition has extended to the bar and tube strip branches, and Staffordshire middlemen are sending orders to the North of England for sheets instead of buying them from Staffordshire makers. Alive to their position the Staffordshire masters hold that until they get a substantial reduction in the present wages they will be unable to withstand the increasing imports. For some time past wages in Staffordshire have been nominally 7½ per cent. higher than in the North of England, and some ironmasters contend that this difference also exists in actual as well as nominal practice, since they hold that the extras of 6*d.* per ton which have hitherto been allowed in the North of England and which are equal to 5 per cent. are in the present condition of trade not persisted in in the North. The Staffordshire men, however, dispute this reasoning, and contend that the difference is only 2½ per cent. between their wages and those of the North. Several meetings of the South Staffordshire Ironmasters Association have recently been held to consider the advisability of demanding a reduction, but definite action will depend upon the character of the award of Dr. Spence Watson in the North of England arbitration. This award has been anxiously waited for since the question was argued before Dr. Watson. Whether the arbitrator declares a drop or not, it is altogether likely that the Staffordshire masters will at once proceed to call for a considerable reduction of either 5 or 7½ per cent., and if Dr. Watson should award a decreased wage, the hands of the Staffordshire masters will be materially strengthened. They declare that it is impossible longer to postpone the obtaining of relief in this direction if they are to continue to contend against the competition from the Northern ironmasters.

WAGES IN THE IRON TRADE.—On Thursday evening the award of Dr. Spence Watson, reducing ironworkers' wages in the North of England 2½ per cent. for three months, was received at Darlington. The employers claimed 7½ per cent., owing to the great depression and fall of prices. The men resisted the demand, as it would bring them relatively below Staffordshire, and give lower wages than were given even in the depressed period of 1879. The arbitrator remarks that he believes the conclusion he has come to is in the true interests of both parties, and trusts that the depression may speedily end.

BRITISH MINES.

GREAT WEST SHEPPHERDS—R. J. Nancarrow, October 27: New Engine Shaft: In sinking this shaft below the 30 fathom level we find the character of ground to be improving for the production of mineral, and good progress is being made in the full development of men, horses and machinery. We have now reached the 30 fathom level, where, in driving, cost it is 4 ft. wide, composed chiefly of blookan and mundle, but unproductive at present for lead. In driving two ends on No. 1 lode, north of Browne's, both east and west, we are producing lead and silver, which is the best thing for us as we open out on it. We have not yet opened out on No. 2 lode, which stand 6 fathoms still to the north at this level; but judging from what

By carrying in product a very good blende and lead worth about 30s. per fathom. We have started a rise just behind the forebrest where the lode is fully worth tons of lead and blende per fathom. The 23 level, south of junction, is not reducing so much lead, but more blende, worth about 20s. per fathom.—East

per fathom. Parra's winze will be noted to the 20 in a few days, value is 1 ton in a fathom. Gabriel's winze being drained by the level below the sinking below the 80 has been resumed.

ALAMITOS.—October 21: In the 20, driving west of San Martín's shaft, the lode is small, but well defined, producing $\frac{1}{2}$ ton per fathom. The lode in the 20, driving west of Santa Agueda's shaft, is getting near a large cross cut; its present worth is 1 ton in a fathom. In the 130, driving east of Taylor's engine shaft, a small vein of lead has been intersected, and we think we are near the main lode. In the 130, driving west of Taylor's engine shaft, there is but a wall to guide us. The lode in the 130, driving east of San Victor's shaft, is a large, continuous vein of lead. There is a good lode in the bottom of the 95, driving in the same direction. In the 95, driving west of San Victor's shaft, the lode declined in value to 1 ton per fathom in the past week. The lode in San Felipe's shaft, sinking below the 60, is wide and promising, yielding 1 ton per fathom. Parra's winze will be holed to the 20 in a few days; its present value is 1 ton in a fathom. Gabriel's winze being drained by the level below the sinking below the 80 has been resumed.

Pursuant to s. 7 (4) of 43 Vict., ch. 19 (Companies Act, 1880), the names of the undermentioned companies have this week been struck off the register and dissolved. An asterisk prefixed to a name signifies that another company with the same or a similar title is believed to be carrying on business at the present time:—Alltami Colliery, Anglo-French Volcano Hydraulic Gold, Bala Lake Slate and Slab Quarry, Bellthall Mineral Waters, Bilson and Crump Meadow Collieries, Cadafarch Coal and Firebrick, Cannock Old Coppice Colliery, Cauca (Colombia) Rivers Gold Dredging, * Copper Queen, Limited, East Elwy River Lead Mining, Essex Steam Ploughing and Engineering Company, Forest of Dean Iron, Frontenac Lead Mining and Smelting, * Goreau Silver Lead Mining, Isabinda Gold Company, Lincolnshire Steam Threshing and General Agricultural Machinery, Llantwit Colliery, Manx Brick, Tile, and Earthenware, Mitcheldean Colliery, Montpelier Silver Lead Mining, Nant Hir Colliery, Nascent Copper, New Welsh Slate, Penbedw Lead Mining, Phoenix Vitrified Brick, Paving, and Fire Clay, Stow Crag Mining, Wolcott Copper Mining and Chemical Manufacturing.

the rate of interest advances the more restricted would business necessarily become. A large proportion of the business is done by paper money, and therefore if these are not to be discounted so freely as usual, or at all events a higher rate of interest has to be paid, transactions must consequently become more and more contracted, and limited to the most urgent and pressing requirements of the trade. It was hoped that the cheap prices and cheap money which have existed for such a long time past would ere this have stimulated trade, and brought about a revival some time since, particularly as about a month ago there were numerous promising rumours of trade restoration, but with the exception of a few sheet-iron works in the Midland counties, where briskness prevails, there is very little doing, and not only in general is there no evidence of the slightest improvement, but numerous are the complaints of a dull and languid state of trade, and a great difficulty exists in securing orders. Now one of the greatest supports to trade—cheap money—seems likely to be removed, at least temporarily, and at a time when the trade can ill afford it. Business requires encouragement, and not a damper thrown upon it, and whilst dearer money appears imminent the market must be deprived of one of its greatest supports, for it is much easier to support prices, and bolster a market when money is cheap, than what it is when money is dear. The more the matter is ventilated the more it will be found that the regular demand must be interfered with by any advance in the value of money, and equally so is the speculative demand adversely affected. First of all, influence deters operators from buying; the influence brought about by a more limited general business in metals; the influence produced by the adverse effect of cheap money on the Stock Exchange, and the influence which establishes a cheerless and unhealthy feeling. This influence not only discourages operators from buying, but it also forms a good inducement to the "bears" to increase their sales, which, for the time being, brings about a most injurious effect upon the market. Beyond this there is also the increased difficulty of finance which operators experience, in common with others, when the value of money advances. It is true that a great part, and perhaps the chief part, of the speculative buying is transacted for the difference in price between the time of buying and that of selling; but, at the same time, there is a great deal done on loan, and, therefore, a rise in money must affect this branch of the trade. Finance will be more difficult to arrange, and as loans fall due operators will be open to the choice of one of two courses, either to sell and not renew their loans, but to cut their loss at once, or else continue their loans, paying a higher rate of interest, and probably from the reduced prices an increased margin as well. The chances, therefore, of having sales pressed upon the market are manifest, and the effect of such sales has been clearly seen during the last few days, both in copper and Scotch pig-iron.

COPPER.

This market has been extremely sensitive and irregular, and considerably reduced prices have been accepted. Prices for Chili bars have again lost all they had previously picked up, and once more has the acceptance of the lowest price on record to be stated. The course of the market is most remarkable for its regularity in one sense, and its irregularity in another, by which we mean to convey that the history of the trade during the past few months shows that repeatedly after every fall of, say, about 2l. to 3l. per ton, there is an advance of about 20s. to be followed once more by another drop equal to that previous to the rise, and this has been continued with so much regularity that the cheapest price ever accepted has incessantly to be reported, whilst here we can scarcely do otherwise than pause to state that if this same characteristic is again to be a feature in the market the price will fall in the course of the next week or so by about 1l. per ton. As regards the irregularities to which we have referred they are plain from the sharp fluctuations that have occurred, they arise from the sensitiveness of the tone, and need no special comment. Because this has been the course of the market in the past it does not necessarily follow however that it must continue so in the future, but we lay the facts as they are before our readers, and whilst it is quite evident that what has taken place in the past may recur again, an event which many anticipate is more than possible, still it is not a necessary consequence, and it may be more risky to play with present low prices than some people imagine. We are arriving at a time when there may be a turn for the better or for the worse. Doubt and obscurity covers the future, and during the uncertainty holders are nervous, operators sensitive, and a general uneasy feeling prevails. To-morrow or early next week the Chili charters for the last half of October will be known, the statistics will be published, and upon them the immediate future of the market may turn. But so far as matters now stand, and according to the statistics which are now known, supply is in excess of the demand, and pending the reversal of this fact prices are easy. Much has been said of a continuous increase in the American supply far above all trade requirements, but this is, doubtless, an exaggerated statement, and must be treated only for what it is worth; but still for all that, there is the plain simple fact that for the present the supply is too heavy, and until there is a change in this respect there is no hope for the market permanently recovering. We are quite prepared to admit that when stocks begin to continuously decline, either from increased business or diminished supply, for it matters not which, there is every scope for the price of copper rallying materially; but until then it would only be falsifying the market, and most misleading to hold out a bright and cheerful prospect. Holders may do all they can to bolster the market, operators may use every effort to support prices, sellers may exercise all available strength until they are pressed for a want of orders, and rumours may be industriously circulated as to a speedy advance in the value of copper, but these are only artificial means brought to bear upon the market. They have but a passing effect, and their influence fails to bring about the required relief. No one believes in them excepting, perhaps, the outside public who have not followed from time to time the various movements of the market, and, therefore, they do no more than produce a mere passing fluctuation. Supply and demand alone can regulate a market, and as soon as the latter begins to increase and supplies show symptoms of falling off confidence will then, and probably not till then, be again restored.

IRON.

There is very little fresh feature to report in the state of the iron trade, but old characteristics appear to be weekly becoming more and more prominent and pronounced. The galvanised branch of the trade continues in its activity, and is thus conspicuous from all other branches; whilst the Osier Bed Iron-works at Wolverhampton have now been re-started, and as they

will give considerable employment in that locality, their re-opening is the signal for general rejoicing amongst the employed in that neighbourhood. As we have on previous occasions shown, the briskness in the trade is confined to the particular branch of galvanising; and is a matter of satisfaction that manufacturers see their way clear to increase the production even of this one special kind of iron. It is said by next week two forges and three mills connected with these works will be running, and in a month's time five mills will be ready. The works are expected to give employment to 400 iron workers, so that the prospect for the coming winter has been materially brightened, and the extra occupation will be much appreciated in these dull and cheerless times, when depression exists not only in the other branches of this special trade but also throughout all other trades. The Staffordshire local trade on the whole remains fairly steady, and a moderate business is doing in other descriptions as well as galvanised sheets, but here the favourable feature ends. There is not a single other feature that we can refer to and pronounce it good, except perhaps in Lancashire, where at the lowest basis of prices there is a moderate amount of briskness. Shipbuilders and engineers are slack, hematite pigs are dull, finished-iron trade quiet, prices are easy, stocks accumulating, and the general trade becoming more and more depressed. Such is the character of most of the reports which flood in from all sides, and all round are complaints that the speculative movement which arose last month has not only subsided, but prices have again fallen to as low figures as were previously being realised. Buyers will not follow up any rise, and hence the eagerness to secure all orders even at previously low rates. Advances from abroad are equally discouraging, the Belgian market being reported very bad, orders most scarce, and not more than five days a week are the works in operation, whilst prices are still unchanged at previously low figures. The iron trade in France is declared flat, and the only encouragement that is held out is that now the elections in that country are over trade may revive, and that the Chamber may take some prompt steps to do something towards removing the present depression. The German trade, suffers from excessive production, and, as the demand does not increase, stocks necessarily accumulate, with the consequence that lower prices have to be accepted in order to facilitate and promote business. It seems almost certain that makers will have no other alternative than to blow out some of the furnaces, as the present rate of production is far too heavy, whilst quotations for both crude and finished iron are somewhat easier. The advances which we report this week from Middlesbrough are most discouraging. Shipbuilding is said to be stagnant, prices all round lower, buyers hold aloof, and sellers are anxious to sell even forward at current cheap prices; but meet with little success. Stocks are also considerably larger, but the principal adverse feature is the immense falling-off that has taken place in shipments, there being, so far this month about 100,000 tons less than the exports during the month of September. If we turn to the advices from the Midland counties there is not much to be said in favour of the trade, except that to which we have already made reference, but the returns from Glasgow are again disappointing. The tone is very flat, makers' iron is in but poor request, prices all round are weaker, the shipments have again decreased considerably, consumption is by no means large, stocks are much heavier than a week ago, and there is not a single bright or favourable feature in the whole trade. We give our usual weekly advices from the various manufacturing centres, and they will be found to reflect the state of the trade in the different parts of the country. On Monday last, the Glasgow Warrant Market opened with a depressed tone, and prices receded from 41s. 9d. down to 41s. 7d., and on Tuesday the feeling continued quiet, and transactions took place from 41s. 6d. to 41s. 7½d. On Wednesday the market was steady, and only a small business was transacted at 41s. to 41s. 3d. cash; while yesterday there was very little doing, the price being 41s. 2½d., and the closing quotation for this afternoon is 41s. 4½d. per ton. The shipments last week were 7210 tons, against 10,806 tons for the same week of last year, being a decrease of 3596 tons, and which makes the total shipments for the whole of this year 375,751 tons, against 463,543 tons for the same time of last year, and 546,622 tons for the similar period of 1883. There are still 91 furnaces in blast, and the public stock has been further increased by 1279 tons, and now amounts to 631,823 tons, against 630,544 tons last week. The imports of Middlesbrough pig-iron into Grangemouth last week were 8270 tons, against 5726 tons for the same week of last year, being an increase of 2544 tons, and which makes the total increase for the whole of this year, compared with last 97,937 tons. The Middlesbrough market is reported very inactive, a small business only being transacted, and prices are decidedly easy, present quotations being 31s. 9d. to 31s. 10½d. for No. 3, and 31s. to 31s. 3d. for No. 4. The shipments are small, and have considerably fallen off, and but little iron is changing hands, since buyers for the most part hold out for lower prices. The public stock has further increased during the week by 2751 tons, and is now estimated at 109,981 tons. Warrants are nominally quoted at 32s. 3d. to 32s. 6d., and for manufactured the demand has continued quiet, and prices easy at about 4l. 17s. 6d. for common bars, 4l. 7s. 6d. to 4l. 10s. for angles, and 4l. 12s. 6d. for fish-plates. There is little change to report from Wolverhampton, the principal event being the re-starting of the Osier Bed Ironworks upon sheets, the present price for sheets being 6l. 10s. for singles, and 6l. 15s. for doubles, galvanised continuing to maintain the recent advance of 5s. Bars are selling from 5l. 10s. to 6l. for common, better class at 6l. 10s., and marked bars at 7l. 10s. Hoops are offering at 5l. 10s. Pigs are slow of sale, all-mines selling at 55s., part-mines at 42s., and common 32s. per ton. The Birmingham market is reported dull, and whilst specifications in fulfilment of old contracts continue to be received, new orders come to hand very slowly. A little more business has been done in nail rods, but the demand for tube, strip, and boiler-plates is limited. Marked bars have undergone no change, and whilst sheets have not altered in value by the associated firms, others are selling at cheaper prices. The arbitrator of the Northern iron trade has given his award for a reduction in wages of 2½ per cent., which makes the present rate 2½ per cent. lower than it has ever been before.

TIN.

A moderate business only has been transacted this week in tin, prices until Wednesday showing an easy tendency more from the market being neglected than from any other cause; but yesterday there was a smart spurt of fully 10s. per ton, by which the market regained all it had previously lost in the early days of the week. The immediate cause of the advance yesterday was due to the Dutch sale having realised a favourable price, the figure being equal to 91l. 15s., which engendered strength to our market here, revived the drooping tone, and brought back prices to their original figures. There is very little new feature to report, but it is evident, as we have so often shown of late, that the main object of operators is to support prices, and it is most remarkable that they are able to exercise so much strength in sustaining their market in face of the bad state of general trade and the serious and unfavourable influence arising from the movements made upon the copper market. Holders are strong, and the "bears" will no longer

fight against them, forward prices having recovered still further during the week, and are now about 7s. 6d. to 10s. above the price for cash. When the returns for the month of October are made known there will be a fresh feature to regulate prices, and without anticipating them at all, or giving the slightest hint as to whether they may or may not prove favourable, we can only state that should they be deemed satisfactory by the trade in general, it is more than probable that a further rise may ensue, and, on the other hand, in the event of their disclosing no change in the state of the market, or indicating a slight increase in stocks, it is not likely that any material depreciation will follow. That is the only conclusion that can be drawn from the recent movements in this metal, and more particularly those of the past week. The influence of bad trade, and the disorganised state of the copper market, have failed to produce any material impression upon tin, but the improved prices realised at the sale in Holland sent prices up immediately. If, then, so small a matter has such a beneficial influence how much more any signs of the requirements of the trade overtaking supplies; and, again, if the weighty unfavourable matters to which we have referred fail to produce any adverse influence how much less likely is just a small addition to an already limited stock to have an injurious effect at a time when the consumption of tin is about up to an average, and the disposition is to purchase largely. The improvement began yesterday, but it has continued to-day. The advanced prices have not only failed to check buying, but the rising market has rather attracted buyers, and business has been carried through at constantly improved values. Sharp cash parcels have changed hands at 91l. 5s., and forward lots have been dealt in at a proportionate advance. The advices from America show the market there to be fairly well sustained, though the latest advices do not report the market quite at its best point, nevertheless only so small a difference as to be accounted for by the mere ordinary fluctuations. In English tin a fair business is being transacted; nothing very special, but at the same time quite enough to enable the smelters to firmly maintain their prices at 93l. per ton, and buyers when they are in want of tin have no hesitation whatever in paying this figure, but give out their orders freely, since there is every prospect of its being sustained for the present.

SPELTER continues quiet, at 14l. to 14l. 5s. for ordinary brands, and 14l. 5s. to 14l. 7s. 6d. for specials.

LEAD is firmer, and there are no sellers of Spanish under 11l. 5s. and buyers at 11l. 2s. 6d., English being quoted at 11l. 10s. to 11l. 12s. 6d. per ton.

ANTIMONY is quiet, at 35l. to 35l. 10s. per ton.

STEEL.—There is no improvement to report, and prices are unchanged.

TIN-PLATES.—A fair business continues to be transacted, and prices remain tolerably firm.

QUICKSILVER.—Inanimate at nominally unchanged rates.

In the MINING SHARE MARKET the dealers have again been engaged in the settlement of the fortnightly account, and there is very little change from last week, either in prices or in the amount of business transacted. In Cornwall things are just as dull as in London, both in speculative mines and in those for investment. Nor will there be much business doing until after the excitement of politics and the election is over.

TIN remains much about the same, but if anything rather weaker price. The standard for ore has now kept stationary for a much longer period than usual; no change having been made since the 10th of August. In shares there is scarcely any business doing, and prices give way on a pressure of sales, although there may be no change in the prospects of the mines to warrant it. Blue Hills are weaker at ½ to ¾, though the mine continues to look well. Carn Brea are lower at 2½ to 3; Cook's Kitchen, 9 to 9½; the cross cut on Dunkin's lode, at the 234, is opening up well, and for the 10 fms. driven has yielded rich tin. Dolcoath's are quiet at 72 to 74. The lode in the bottom level has been reported upon as worth 100l. per fathom so far as seen. The bottom level has opened up a long and rich course of tin. East Pool, 45 to 46; East Blue Hills, 25s. to 30s.; Killifreth, 11s. to 13s.; New Kittys have advanced to 1½, 1½; a few weeks ago they were as low as 10s.; the mine adjoins West Kitty. Phoenix, 1½ to 1½; Par, 1 to 1½; Polberro, 1½ to 2½; Prince Royal, 4s. to 6s.; South Condurrow, 6 to 6½; South Croft, 6½ to 7; South Frances have further declined to 7, 7½; Tincroft, 5½ to 6; Trevaunance, 2½ to 2½; West Basset, 2 to 2½; West Frances are weaker at 7½ to 8½; West Kitty remain about the same at 7½ to 8½; West Polbreen, ½ to ¾; Wheal Agar, 18½ to 19; Wheal Basset, 5½ to 6; Wheal Grenvilles have advanced to 13½, 14; Wheal Kitty (St. Agnes), 10s. to 15s.; Wheal Metal and Flow, ½ to ¾; this mine has been specially reported upon, and the report fully confirms all that has been said by the agents respecting its good prospects. Goodevere, 1 to 1½; West Godolphin, 1½ to 1½.

COPPER has not been so firm, and in shares scarcely any business has been transacted; quotations, therefore, are merely nominal. Bedford United, ½ to ¾; Devon Great Consols, 1½ to 2½; Gunnislake (Clitters), ½ to ¾; Prince of Wales, 7s. to 9s.; West Seton, 4½ to 5; Wheal Crebor, ½ to ¾; the points in operation in the mine now are valued at 60 tons of copper ores, and 21 tons of mundic per fathom. The New Caradon, 2s. to 3s.; the lode at the 60 is 3 ft. wide, and altogether the agent states as kindly a lode as can be seen without a bunch of ore. New West Caradon, 1s. to 1s. 6d.; Ecton, 1½ to 1½; South Caradon, ½ to ¾.

LEAD remains about the same, but very little doing in shares. Vans have been rather in demand, and shares advanced 1½ to 1½. The cross-cut at the 150 fathom level has now been driven 483 fms., and the lode expected daily. The mine has sampled 100 tons of lead ore. Great Laxey, 9 to 9½; Roman Gravel, 3½ to 4; Leadhills, 2 to 2½; D'Eresby, 1½ to 1½, fully paid; sinking the shaft here is going on as expeditiously as possible. Weardale, 1½ to 1½; these mines have sold this week 207 tons of lead for 11l. per ton. The returns are now over 200 tons a month, and are leaving a profit. Craven Moor, 8s. to 10s.; South Darren, 7s. to 9s.; Standard Lead, 1½ to 1½; Gwern-y-mynydd, ½ to 1½.

FOREIGN MINES.—Mines are largely dealt in, apparently for mere gambling operations. Many thousands a day, it is said, change hands in several speculative concerns at a few shillings each, and in which prices varying from 1½d. to 3d. per share are made. Almada, 3s. to 4s.; Birdseye Creek, 1 to 1½; Bratsbergs, since the meeting, have been firmer and leave off 7s. 6d. to 10s. There is very little doubt abroad as to the value of the mines, and had copper kept up, dividends would have been made; though, to begin with, the working capital of the mine, including the building of ships and other charges, was too small. Callao Bis, 3s. 6d. to 4s. 6d.; Cape Copper, 2½ to 2½; Chile Gold, 6s. to 7s.; Colorado, 2½ to 2½; Columbian Gold, 7s. to 9s.; Indian Consolidated, 7s. 6d. to 8s.; California Gold, 2s. 6d. to 3s. 6d.; Copiapo, 2½ to 2½; Frontino and Bolivia, 10s. to 12s. 6d.; Glenrock, 5s. 6d. to 6s. 6d.; Hoover Hill, 7s. to 9s.; Devala, 4s. to 5s.; La Plata, 4s. to 5s.; Mysore, 2½ to 2½; Nouveau Monde, 2s. to 3s.; Nundydroog, 13s. 9d. to 16s. 3d.; Ormos Gold, 7s. to 9s.; Orita, ½ to 1½; Oscar, 7s. to 9s.; Panulicillo, 1½ to 2½; Richmond, 3½ to 3½; Ruby, 6s. to 7s.; Santa Barbara, 1 to 1½; United Mexican, 2 to 2½; Montana, 2½ to 2½; Potosi, 4s. to 5s.; St. John del Rey, 60 to 65; Schwab's Gully, 3½ to 3½; Tolima A, 3 to 3½; Tolima B, 2 to 2½; Victoria Gold, 2s. to 3s.; Western Andes, 4 to 4½; New Albion, 1½ to 1½.

INSURANCE SHARES have, according to this evening's report of Messrs. W. L. WEBB and Co., of the Stock Exchange and Finch-lane, been dealt in as follows:—City Fire, ¼; ditto, Marine, ¼ to ½; Commercial, 1½; Equity and Law Life 2½; Guardian, 60 to 60½; Home and Colonial, ¼ to ½; Indemnity Marine, 1½ to 1½; Law Life, 15 to 15½; London, 4½; Merchant Marine, 1½ to 1½; National Marine, 2½; North British and Mercantile, 2½; Ocean, 5½ to 5½; Universal Marine, 4½ to 5½. Insurances show a marked improvement, particularly the marine companies.

Mining Notes.

THE directors of the Montana Company (Limited) inform the shareholders that for some time past they have had reason to remonstrate strongly with the general manager at the increased expenditure at the mine, and the consequent diminished net returns, nor have the relations between Mr. Brereton and the other officers of the company been of a satisfactory character. Under these circumstances, the directors, after very careful deliberation and conference with the consultative committee, arrived at the conclusion that, in the interests of the company, a change in the management was necessary; they therefore expressed a desire that their colleague, Mr. R. T. Bayliss, should proceed to Marysville, and he, after much hesitation, acquiesced in their wishes, left England on the 10th instant, arrived at Marysville on Oct. 23, and is now resident managing director at the mine. The experience this gentleman has had of the mine and works, and the admirable manner in which he conducted the affairs of the company during the six months he had charge of the same, lead the directors to anticipate that a similar success will attend his present and future efforts as that which so conspicuously marked his former management, and that his appointment will be cordially approved by the general body of shareholders. The directors are willing to believe that in the policy pursued by Mr. Brereton he has been actuated by the best intentions, and they much regret being compelled to sever their business relations with him, but they cannot allow private feelings to interfere with a public duty, and considering the responsibility of the trust confided to them by the shareholders, they felt they had no alternative but to make this necessary change with promptness and decision. The developments in the mine continue to be of a most satisfactory character, and the directors feel confident that harmonious working on the part of the company's employees and economical management are alone wanting to secure monthly returns of profits in excess of those lately received.

THE remedy proposed by a Cornish smelter (Mr. Daubuz) for the salvation of Cornwall, has been scouted by other tin smelters in Cornwall. Mr. T. W. Field has been the last to speak. Mr. Field's figures are conclusive that were England to impose a duty on imported tin, which Mr. Daubuz desires, our tin-plate industry would be crippled. A reference to these figures, which are given elsewhere, will be found interesting.

ON Thursday next Cook's Kitchen meeting will be held, when a heavy loss may be anticipated, and that a call of less than 12. per share will be made nobody believes. It is time the junction of the lodes in the shaft were proved. The calls here have been numerous, and such losses as are now being incurred cannot go on for ever. Captain Josiah Thomas is most sanguine of the junction of the lodes making Cook's Kitchen a great mine, and the time is not far distant when it will be seen if Captain Thomas will crown his great discovery at West Frances by an even greater one at Cook's Kitchen. The largest shareholders are the Messrs. Bolitho, of Penzance, and that firm will not rest satisfied until the mine has been thoroughly proved.

NEW Terras Mining Company requires 3000*l.* more to erect and perfect machinery. At the meeting on Tuesday the speeches were of a cheering character, and a calculation was made of 35*½* per cent. At that meeting, also, it was shown how hard are the Land Laws in Cornwall, and no more forcible example of the necessity of mining reform could have been afforded. Here a previous company had had the sett and paid for it, and yet when the present company came in they had again to pay full value, and five years' minimum rent in advance. In this matter of the lord alone 1700*l.* was spent, and not a penny expended otherwise. Very Radical expressions were made during the proceedings, Mr. Conybeare being praised for his earnestness and energy.

At a meeting of West Phoenix shareholders at Webb's Hotel Liskeard, on the 22nd, the accounts showed a debit balance of 654*l.* 4*s.* 7*d.* to the 26th of September, after payment of all liabilities to that date, and for the further prosecution of the mine a call of 3*s.* per share was made. It was decided, with the kind permission of the committee of the Phoenix United Mines Company, that a professional dialler be engaged specially to inspect the plans and sections of this mine, so that the true position and bearings of their lode on which they are returning large quantities of tin may be correctly ascertained in regard to its situation in this mine. It is generally believed in the district and by the agents of the adjoining mines that they have not been working on the same lode; it is supposed to be further south, between Norris' shaft and the new lode lately intersected. Should this prove correct it will enhance the value of this mine considerably, and discover a valuable section of tin ground for future working.

THE directors of the New Albion Gold Mining Company (Limited) have declared a second interim dividend of 5 per cent., or 1*s.* per share, free of income tax.

EAST Botallack Mine (in the parish of St. Just), with the machinery and plant thereon, was sold as "a going concern" in one lot, at Penzance, on Monday last, by Mr. Edward Eva. It was knocked down at 80*l.*

FROM Canada, it is reported that the Westmorland Mining Company is intended to be formed in Dorchester, by Messrs. Marquis F. Dickinson and Grenville D. Braman, of Boston, D. L. Harrington, M. G. Teed, A. N. Chartres, of Dorchester; capital, \$500,000. The object of the company is the mining and reducing of copper, gold, and silver ores and minerals. It is expected that the International Mining and Smelting Company, of Winnipeg and St. Paul, will shortly commence mining operations in their iron mines on Big Island, Lake Winnipeg, there being rumours of an agreement with a capitalist, which grants him the privilege of mining their claim and taking out 20,000 tons of ore per annum for a period of 25 years.—*Journal of Commerce.*

THE *Tasmanian Mail* of September 5 gives the following statement concerning the Tasmania Mine:—August 28: Cleaned up from crushing of 1745 tons of quartz, the return being from plates and ripples, 2345 ozs. of amalgam, and from boxes 2173 ozs. The gold will be reported in the morning.—(By Telegram.) The amalgam from recent crushing has yielded 1931 ozs. of retorted gold; value, 7241*l.* 5*s.*; the average being 1 oz. 2 dwts. 8*g.* to the ton. The gold was brought to Launceston this (Saturday) evening, and lodged in the Commercial Bank of Tasmania. A dividend of 2*s.* 6*d.* per 30,000th share has been declared. The dividend tax amounts to 140*l.* 12*s.* 6*d.* In addition, 187*l.* 10*s.* has been carried to the reserve fund.

WE learn that important alterations have been made in the proprietary of the Quicksilver-Wave Amalgamator Company; the limited company being wound-up voluntarily, and the patents and business taken over to be worked by a syndicate. The works and offices will meantime be carried on as before, and as per advertisement in our columns. By the alterations referred to some very important co-operation is secured.

THE directors of the St. John del Rey Mining Company (Limited) have received the following telegram from Morro Velho, dated Rio Janeiro yesterday:—Produce nine days, second division of October, 6750 oits., value 2616*l.*; yield 4*½* oits. per ton.

DURING the week a fine lode has been cut into at the bottom of Leadhills Mine. So far as seen it is worth over 2 tons of lead ore per fathom, and improving.

THE Roman Gravels Mine continues to open out well: 100 tons of lead ore have been sampled for sale next week, and 30 tons of blende have just been sold, realising 78*l.*

THE agent reports that the lode in the Wheel Emma part of the Devon Great Consols, which has been left standing during the past month, is now being taken down and is of large size, fully 5 ft. wide, and of a strong masterly character, producing small quantities of copper and tin ores and 2 tons of arsenical mundie per fathom.

THE third ordinary general meeting of the English Crown Spelter Company (Limited) will be held at the Cannon-street Hotel, on Tuesday, the 10th day of November, at two o'clock in the afternoon, to receive the report and accounts for the year 1884, and for general business.

MR. HORACE WOODBURN KIRBY, of 4, Coleman-street, has been appointed by the Vacation Judge, acting for the Vice-Chancellor Bacon, to be Official Liquidator in the matter of Crooke's Mining and Smelting Company (Limited).

A PETITION for the winding-up of the Mexican Mining Company (Limited) was presented to the High Court of Justice on the 26th inst., and is directed to be heard before Mr. Justice Kay on the 7th November.

CABLE advices from the Kimberley Central Diamond Mining Company (Limited) state that the new system of underground mining has proved a decided success; the weekly output of blue ground is steadily increasing, the quantity raised and deposited on the company's floors for the week ending 24th inst., being 4600 loads, and it is confidently expected that they will shortly be hauling at the rate of 1000 loads per diem. The company have at present a stock of about 20,000 loads on their floors. The new system of working will obviate all the difficulties with which the company has had to contend in past years from slips of reef.

MESSRS. Abbott, Page and Co. have received the following telegram from their correspondent with respect to the Silver Queen United (Limited):—Lode Animas 8 wide, \$150 per ton. Another just cut, 8 wide, \$300 per ton. San Juan, 10 wide, splendid, good beyond expected. Machinery anticipate working week within time. It is stated that the machinery is capable of working 150 tons of ore per day.

AN important strike has been made in the Late Acquisition Mine, on the west end of Aspen Mountain, Colorado. This property was worked under a lease up to a short time ago. The lessees sunk an incline shaft on the vein to a depth of 100 feet. In the upper part of the shaft a body of ore was struck and worked out. The ore proves to have been on the hanging-wall, which deflected to the west, while the incline followed the foot-wall. A drift from the bottom of the incline has been run west, opening up a large body of high grade ore. The management is reticent about giving information, but enough is known to justify the statement that it is one of the most important discoveries ever made here. It proves up a section entirely disconnected from that in which the present famous producers are situated. It is claimed that the ore runs 300 ozs., and that there is a very large body of it. A prominent mining man who has seen it says "the Late Acquisition is as rich a mine as any on Aspen Mountain."

THE directors' report of the Snaefell Mining Company (Limited) states that the completion of the additions and alterations to the dressing machinery, which were going on at the time of our last report, was so protracted, through no fault of your directors or manager, that when the time came when it could be put to work the dry season had arrived, and, therefore, there was not water sufficient to carry on dressing operations, and the large bulk of orestuff at surface is still there undressed. Your directors then took into consideration as to whether the water supply could not be made more effective, and they have adopted a plan by which the water can be used over again—first, for the large wheel and turbine for pumping and winding; then using the water coming from them for dressing operations; and, finally, by conducting the water from the dressing-floors to another reservoir for supplying a more powerful turbine, which will be employed to work two air-compressors. The new turbine is expected shortly from the makers, and a double cylinder air-compressor, and three additional rock-drills have been purchased on advantageous terms, and are now at the mine. The turbine house is in course of construction. Dr. Foster, Government Mine Inspector, visited the mine in June and July last, and found fault with the ventilation. He instituted two suits against the company, resulting in the company being fined 20*s.* in each suit. The case was fully reported in the Press at the time, so that there is no need to enlarge thereon at present. The two directors who retire by rotation are Messrs. T. Fisher and R. Roney, both of whom are eligible for re-election. Your directors recommend that the next ordinary general meeting shall be held in Douglas, on the first Wednesday in November, 1886.—The agent reports: The 130 fm. level has been driven further north about 28 fathoms, making the end about 346 fathoms from the shaft. We do not know the exact size of the lode, as we only carried a portion of it. Going on by the footwall there is a good rib of lead with blende and spar, and to the east of this the lode is mixed with lead, blende, vein rock, and spar. The end is hard, and lets out water. This end has been stopped for the past five months, and a rise put in the roof to communicate with the 100. This has been completed, giving additional ventilation in the mine. We have now started to drive a level north from the sump, which is about 208 fms. from the shaft, and 115 fms. from surface. The lode is 4*½* ft. wide. By the footwall there is a branch of steel ore and very nice spar. The rest of the lode is spotted with ore. The 100 has been driven a further distance north of about 85 fms., and is about 216 fms. from the shaft. When this level was sufficiently advanced over the rise coming up from the 130, the men were put to sink in order to sooner complete the communication, and this was done in a very satisfactory manner, and the end is being driven on again. The lode in the end keeps large, and is mixed with ore. The part of the lode left standing on the east side is spotted with lead. During the summer season we have added about 160 ft. to the washing-floors by arching over the river, and the work has been well done, and will be of great advantage to us. The men are now building the house for the new turbine, and expect it will be ready by the time the turbine arrives. We have also been preparing for a new magazine, the old one not being deemed sufficient. We have also been enlarging one of the reservoirs, but this work has not yet been completed. All our machinery and pitwork is in good working order.

THE Spitzkop (Lydenburg) Gold Mining Company (Limited) have received the following telegram from the company's manager at Spitzkop:—Have started hydraulic October 14. Shall telegraph result six weeks.

THE Richmond Consolidated Mining Company have received the following cablegram from the mine at Eureka, Nevada:—Week's run (one furnace), \$18,000, from 322 tons of ore. Refinery, \$17,000.

THE directors of the United Mexican Mining Company have received the following telegram:—The excess of returns over outlay on the mine of San Cayetano de la Ovejera for the week ending 24th October, 1885, is \$3067. Remittance sent by mail 3000*l.* Lower ley.

THE Ruby and Dunderberg Mining Company received the following telegram from Eureka on Wednesday:—10 tons tribute ore shipped. None smelted. 23 tons ore shipped and smelted on company's account, producing \$296.

ADVICES have been received by the London and South African Exploration Company of remittances amounting to 5611*l.* for four weeks, making, with 47,115*l.* previously advised, a total of 52,726*l.* for 44 weeks ended October 24.

REPORTS as to the work being done in prospecting the property of the Transvaal Gold Exploration and Land Company have been received. The directors invite any shareholders to inspect the same at the offices of the company.

THE progress of the United States as a zinc-producing country is referred to in a New York paper. It is admitted that there are considerable unworked supplies in Virginia, Tennessee, Georgia, and Alabama. At present the output is about equal to the consumption, and no zinc is now being imported. New mines will be opened as the demand increases. Last year there was an output of 17,594 tons in Illinois, 7859 tons in Kansas, 5239 tons in Missouri, and 7861 tons in the Blue Ridge region, making a total of 38,544 tons, which quantity placed the United States third on the list of zinc-producing countries, the output in Germany being 116,688 tons, and in Belgium 75,366 tons.

THE balance-sheet of the Duisburg (Prussia) Copper Works Company for 1884-5 shows a profit of 3634*l.*, which falls short of the total amount (5922*l.*) required to be written off to the depreciation and reserve accounts according to the Articles of Association. The directors have had to make good the deficiency by drawing upon the special reserve account. The capital of the company is 60,000*l.*

A MEETING of the Accidents in Mines Commission was held, on Tuesday, 20th inst., at its offices, 2, Victoria-street, Westminster. There were present—the Chairman, Mr. Warrington W. Smyth, F.R.S., Sir Frederick Abel, C.B., F.R.S., Mr. Thomas Burt, M.P., Professor Tyndall, D.C.L., F.R.S., and the secretary, Mr. Arthur J. Williams.

THE report for 1884-85 of the Royal Asturias Mining Company of Brussels, which owns zinc and lead mines in Spain, shows a net profit of 56,000*l.*, considerable sums having also been written off to the depreciation and reserve accounts. As the sum in question is to be distributed amongst the shareholders, the dividend will apparently be at the rate of 23 1-3rd per cent. the amount of the share capital being 240,000*l.* The reserve fund amounts to 250,000*l.*

WINDING-UP PETITIONS.

Under this heading we gave in the Journal of last Saturday some particulars of the recent proceedings to wind-up the Neath Harbour Smelting and Rolling Works (Limited) before Mr. Justice MATHEW, sitting as vacation Judge. Since the appearance of that article we have been placed in possession of certain facts which put the matter in a different light, and enable us materially to modify the observations we then made, and to place the petitioner in his real position, not only of intending benefactor to the *bona fide* shareholders in this particular company, but as rendering a great service to the large body of shareholders throughout the country, a considerable portion of whom we have the privilege to reckon amongst our supporters. Whilst it is true the petitioner, in his cross-examination, stated that his intention in the first instance was if possible to recover his money, yet he went on to say "it is just and equitable that I and the other people who have been deluded with me should get back our money." The petitioner is supported in his action by several *bona fide* shareholders and by the debenture-holders in the company, and it is clear that if he had been successful in obtaining a winding-up order he could only have derived under the liquidation the same advantages as would accrue to those who like himself are *bona fide* shareholders in the company. It appears from the documents we have seen that certain disclosures were made after the trial as to the list of shareholders, and the expedients for raising capital, which it is fair to assume—if they had been represented to him at the trial—would have led the learned Judge to arrive at a conclusion favourable to the petitioner; and here we cannot do better than quote the language of Mr. MARTEN, Q.C., the petitioner's leading counsel at the trial, and who, when making application to the same learned Judge to rehear the case upon fresh evidence, said—"Mr. M'LAREN is apparently reported to have said (at the trial) 'I hold here a list sent out by the company, and in every case the shareholder signs his instructions,' and then that was handed to your lordship. You saw the list. Now, since your lordship delivered judgment we have discovered this—that as regards three of those persons who were represented as persons taking a large number of shares—EVANS, 100; MILLEN, 200; and DEVON, 100 shares—they are merely persons in the employ of a firm for addressing envelopes at 1*l.* per week. I have an affidavit of EVANS' stating that he never paid anything whatever, but for 5*s.* at the request of somebody signed the application for shares. He never signed any document expressing a view as to the company going on or not." The same learned counsel had at the trial spoken of bogus shareholders, and with the light of the above statement we think the milder term faggot voter used in our last article must give place to the more forcible definition employed by counsel. There is also documentary evidence that the directors had made an extraordinary bargain with some financial firm to raise the sum of 5000*l.* at a bonus and commission of 25 per cent.; but we reserve any comments upon this and upon other salient points of this highly instructive case until after the sifting enquiry, which, we understand, will be made in the Court of Appeal. One observation we must make, and that is upon the fact that not one of the five gentlemen, some with handles to their names, who figure as the directors of the company, took a single share until they found it necessary to be qualified as shareholders to vote at a meeting of shareholders which was held to oppose the petitioner's action. Even then their holdings were limited to one or two shares each director. The petitioner—Mr. Stevens—has embarked in a contest fraught with much interest to the investing public, and we are sure he will have their best wishes for his success.

STOCK AND SHARE LIST.

BRITISH DIVIDEND MINES.

Share.	Paid.	Last wk.	Clos. pr.	Total divs.	Per sh.	Last pd.
3000 Bedford Unit., c, Tavis. (2111ab.)	0 14	0 0	3 1/2	0 1 0 0	0 2	0 0 Nov. 1884
4000 Carn Brea, c, t, Illogan	15 5	0 0	3 1/2	0 1 0 0	0 10	0 0 Nov. 1881
10000 Devon Gr. Consols, c, Tavis. (2111ab.)	1 0	0 0	2 1/2	0 1 0 0	0 6	0 0 Dec. 1880
4000 Dolcoath, c, t, Camborne	10 14	0 0	7 1/2	0 1 0 0	0 10	0 0 Oct. 1885
4000 East Pool, c, t, Illogan	0 9	0 0	4 1/2	0 1 0 0	0 5	0 0 Oct. 1885
10000 Great Laxey, c, t, Illogan	5 0	0 0	1 1/2	0 1 0 0	0 7	0 0 Sept. 1883
10000 Green Hurth, c, t, Durham	0 6	0 0	0 1/2	0 1 0 0	0 5	0 0 Dec. 1885
10000 Gunnslake (Clitters), c, t	2 0	0 0	5 1/2	0 1 0 0	0 5	0 0 Dec. 1885
10000 Isle of Man, c, t, Isle of Man	5 0	0 0	3 1/2	0 1 0 0	0 2	0 0 May 1882
10000 Killbreth, c, t, Chacewater	4 13	0 0	3 1/2	0 1 0 0	0 2	0 0 Nov. 1883
10000 Leadhill, c, t, Lanarkshire	6 0	0 0	2 1/2	0 1 0 0	0 6	0 0 Sept. 1885
10000 Levant, c, t, St. Just	11 5	0 0	0 0	0 1 0 0	0 2	0 0 May 1882
4000 Llanrhon, c, t, Cardiganshire	15 0	0 0	0 0	0 1 0 0	0 10	0 0 Oct. 1885
10000 Melanear, c, t, Hayle	2 0	0 0	1 1/2	0 1 0 0	0 2	0 0 Apr. 1885
10000 Miners Mining Co., c, t, Wrexham	5 0	0 0	1 1/2	0 1 0 0	0 2	0 0 Aug. 1884
10000 Mining Co. of Ireland, c, t, c, s	7 0	0 0	1 1/2	0 1 0 0	0 2	0 0 July 1885
10000 North Hendre, c, t, Wales	2 10	0 0	0 0	0 1 0 0	0 2	0 0 Nov. 1882
10000 Ditto	1 7	0 0	0 0	0 1 0 0	0 2	0 0 Nov. 1882
10000 Phenix United, c, t, Linkinhorne	6 6	0 0	1 1/2	0 1 0 0	0 6	0 0 Apr. 1882
10000 Roman Gravel, c, t, Salop	7 10	0 0	4 1/2	0 1 0 0	0 2	0 0 July 1885
10000 South Condurrow, c, t, Camborne	7 5	0 0	7 1/2	0 1 0 0	0 12	0 0 Aug. 1885
10000 South Darren, c, t, Cardigan	1 10	0 0	0 0	0 1 0 0	0 2	0 0 Apr. 1880
10000 Tintworth, c, t, Pool, Illogan	14 8	0 0	0 0	0 1 0 0	0 5	0 0 Dec. 1881
10000 West Basset, c, t, Illogan	5 3	0 0	2 1/2	0 1 0 0	0 2	0 0 July 1885
10000 West Killy, c, t, St. Agnes	0 12	0 0	0 0	0 1 0 0	0 2	0 0 Aug. 1885
10000 West Agate, c, t, Illogan	13 6	0 0	1 1/2	0 1 0 0	0 1	0 0 July 1885
10000 Wheel Crebor, c, t, Tavis. (2111ab.)	2 4	0 0	0 0	0 1 0 0	0 3	0 0 Aug. 1884
10000 Wheel Eliza Consols, c, t, St. Austell	18 0	0 0	0 0	0 1 0 0	0 5	0 0 Sept. 1885
10000 Wheel Grenville, c, t, Camborne	15 0	0 0	13 1/2	0 1 0 0	0 3	0 0 Sept. 1885
10000 Wheel Killy, c, t, St. Agnes	5 12	0 0	0 0	0 1 0 0	0 12	0 0 Jan. 1881
10000 Wheel Peavor, c, t, Redruth	1 12	0 0	0 0	0 1 0 0	0 9	0 0 Aug. 1885

FOREIGN DIVIDEND MINES.

Share.	Paid.	Last wk.	Clos. pr.	Total divs.	Per sh.	Last pd.
30000 Alamillos, c, Spain	2 0	0 0	1 1/2	0 1 0 0	0 1	0 0 Sept. 1885
10000 Alameda and Tinto Consol., c, s	1 0	0 0	1 1/2	0 1 0 0	0 1	0 0 May 1887
10000 Australian, c, South Australia	7 6	0 0	1 1/2	0 1 0 0	0 2	0 0 July 1885
10000 Birseby Creek, c, California	4 0	0 0	1 1/2	0 1 0 0	0 2	0 0 June 1885
10000 Bitterberg, c, t, Norway	2 0	0 0	0 0	0 1 0 0	0 4	0 0 Aug. 1884
10000 California, c, t, California	1 0	0 0	0 0	0 1 0 0	0 1	0 0 Aug. 1884
10000 Cape Copper Mining, c, t, South Africa	0 0	0 0	2 1/2	0 1 0 0	0 3	0 0 Sept. 1885
10000 Colorado United, c, t, Colorado	5 0	0 0	2 1/2	0 1 0 0	0 1	0 0 May 1885
10000 Colopayo, c, t, Chile (24 shares)	3 13	0 0	2 1/2	0 1 0 0	0 3	0 0 July 1885
10000 El Callao, c, Venezuela	40 0	0 0	5 1/2	0 1 0 0	0 3	0 0 July 1885
10000 English & Australian, c, t, S. Aust.	2 10	0 0	0 0	0 1 0 0	0 3	0 0 Mar. 1884
10000 Eng.-Aus., c, Viet. (20000 o.)	1 0	0 0	0 0	0 1 0 0	0 3	0 0 Oct. 1882
10000 Fortuna, c, Spain	2 0	0 0	3 1/2	0 1 0 0	0 3	0 0 Oct. 1882
10000 Frontino & Bolivia, c, New Gran.	2 0	0 0	13 1/2	0 1 0 0	0 1	0 0 Dec. 1882
10000 La Plata, c, t, Leadville	1 0	0 0	0 0	0 1 0 0	0 6	0 0 Oct. 1882
10000 La Trinidad, c, t, Sonora, Mexico	5 0	0 0	0 0	0 1 0 0	0 10	0 0 Aug. 1885
10000 Llaneros, c, Spain	3 0	0 0	4 1/2	0 1 0 0	0 3	0 0 Oct. 1885
10000 Marbella Iron Ore, c, Spain	10 0	0 0	2 1/2	0 1 0 0	0 10	0 0 June 1882
10000 Mason & Barry, c, Portugal	10 0	0 0	7 1/2	0 1 0 0	0 4	0 0 Oct. 1885
10000 Montana, c, U.S.A.	2 0	0 0	2 1/2	0 1 0 0	0 2	0 0 Oct. 1885
10000 New Albion, c, Nova Scotia	1 0	0 0	1 1/2	0 1 0 0	0 1	0 0 Sept. 1885
10000 New Hoover Hill, c, North Carolina	0 10	0 0	7 1/2	0 1 0 0	0 3	0 0 May 1885
10000 Oxford, c, Nova Scotia	0 4	0 0	0 0	0 1 0 0	0 1	0 0 Mar. 1884
10000 Quibera, c, t, Land, & Cop. Venezuela	10 0	0 0	3 1/2	0 1 0 0	0 6	0 0 Oct. 1882
10000 Pamplico, c, Chile	10 0	0 0	2 1/2	0 1 0 0	0 2	0 0 May 1884
10000 Pitagora, c, Brazil (10000 shares)	0 18	0 0	2 1/2	0 1 0 0	0 1	0 0 Sept. 1880
10000 Pontgibaud, c, t, France	10 0	0 0	5 1/2	0 1 0 0	0 3	0 0 Oct. 1882
10000 Port Phillip, c, t, Clunes (21 shares)	1 0	0 0	1 1/2	0 1 0 0	0 1	0 0 Feb. 1881
10000 Rara Fortuna, c, t, Argent. Republic	1 0	0 0	0 0	0 1 0 0	0 3	0 0 July 1882
10000 Richmond Consol., c, Nevada	5 0	0 0	3 1/2	0 1 0 0	0 15	0 0 Nov. 1884
10000 Rio Tinto, c, t, Mortgage Bds., Huella	100 0	0 0	0 0	0 1 0 0	0 5	0 0 Apr. 1885
10000 Ditto, 2nd Mortgage Bonds	100 0	0 0	0 0	0 1 0 0	0 5	0 0 Oct. 1885
10000 Santa Barbara, c, t, Brazil	10 0	0 0	1 1/2	0 1 0 0	0 12	0 0 May 1882
10000 Schwab Gully, c, t, Kimberley	10 0	0 0	0 0	0 1 0 0	0 10	0 0 Jan. 1885
10000 Scottish-Australian Mining Co., c, t	1 0	0 0	3 1/2	0 1 0 0	0 2	0 0 May 1885
10000 Ditto, New	0 10	0 0	1 1/2	0 1 0 0	0 2	0 0 May 1885
10000 Sierra Buttes, c, California	2 0	0 0	1 1/2	0 1 0 0	0 2	0 0 Oct. 1885
10000 Ditto, Plumas Eureka	2 0	0 0	0 0	0 1 0 0	0 6	0 0 Oct. 1885
10000 Silver Queen Unit., c, t, Sonora, Mex.	2 0	0 0	2 1/2	0 1 0 0	0 2	0 0 Aug. 1885
10000 Tambrachery, c, t, Spain (5000 shares)	1 0	0 0	0 0	0 1 0 0	0 6	0 0 Aug. 1882
10000 Thariss, c, t, Spain (5000 shares)	2 0	0 0	4 1/2	0 1 0 0	0 7	0 0 May 1885
10000 Tolima, c, t, Colombia (A shares)	5 0	0 0	2 1/2	0 1 0 0	0 2	0 0 Jan. 1885
10000 Ditto (B shares)	5 0	0 0	2 1/2	0 1 0 0	0 2	0 0 Jan. 1885
10000 United Mexican, c, t, Mexico	9 17	0 0	2 1/2	0 1 0 0	0 7	0 0 Aug. 1885
10000 Victoria (London), c, t, Australia	1 0	0 0	3 1/2	0 1 0 0	0 13	0 0 Feb. 1881
10000 Western Andes, c, t, Colombia	5 0	0 0	4 1/2	0 1 0 0	0 4	0 0 Aug. 1884
10000 W. Prussian (5000 pref. sh. £10 pd.)	10 0	0 0	0 0	0 1 0 0	0 4	0 0 Apr. 1881
10000 Yerke Pen., c, South Aust. Pref. 100	1 0	0 0	0 0	0 1 0 0	0 3	0 0 May 1882

I have made calls since last dividend was paid.

NON-DIVIDEND BRITISH MINES.

Share.	Paid.	Last wk.	Clos. pr.
12000 Anderton, c, t, Devonshire	0 6	0 0	1 1/2
12000 Assheton, c, t, Carnarvonshire	5 0	0 0	0 0
3200 Blue Hills, c, t, St. Agnes	4 18	0 0	3 1/2
10000 Brada, c, t, Isle of Man	1 0	0 0	0 0
30000 British, c, t, Wrexham	1 0	0 0	0 0
20000 British Manganese Company	1 0	0 0	0 0
10000 Burnhope, c, t, Edmondbyers	0 10	0 0	2 1/2
50000 Carnabrian, c, t, Cardigan	2 0	0 0	0 0
50000 Carn Carnabrian, c, t, Carnabrian	1 0	0 0	3 1/2
37500 Carnarvonshire Cons., c, t, Llanrwst	2 0	0 0	1 1/2
6400 Cashwell, c, t, Cumberland	2 19	0 0	1 1/2
10000 Central Foxdale, c, t, Isle of Man	0 17	0 0	0 0
30000 Clifford Amalgamated	1 0	0 0	1 1/2
25000 Coal-rod & Pant-y-Buarth, c, t	1 0	0 0	3 1/2
2450 Cook's Kitchen, c, t, Illogan	42 0	0 0	10 1/2
32007 Craven Moor Unit., c, t, Pateley Edge	1 0	0 0	11 1/2
50000 Creighton, c, t, Denbighshire	0 17	0 0	3 1/2
38400 Crook Burn, c, t, Cumberland	0 17	0 0	0 0
12000 D'Eresby, c, t, Llanrwst, £1 share	1 0	0 0	1 1/2
60000 Devon Friendship, c, t, Wrexham	1 0	0 0	1 1/2
50000 Drake Walls, c, t, c, Calstock	0 16	0 0	3 1/2
50000 Duchy Peru, c, t, c, Cornwall	1 0	0 0	1 1/2
12000 East Blue Hills, c, t, St. Agnes	0 7	0 0	1 1/2
6000 East Botallack, c, t, St. Just	1 2	0 0	6 1/2
6144 East Caradon, c, t, St. Cleer	5 7	0 0	6 1/2
15000 East Devon Cons., c, t, Buckfastleigh	2 0	0 0	0 0
6000 East Tregembo, c, t, Marazion	0 6	0 0	5 1/2
2048 East Wheel Leveil, c, t, Helston	0 3	0 0	3 1/2
25000 Ecton, c, t, Wotton	1 0	0 0	1 1/2

Share.	Paid.	Last wk.	Clos. pr.
12500 Frongoch, c, t, Cardigan (10000 sh. iss.)	2 0	0 0	0 0
12000 Gawton, c, t, Tavis. (2111ab.)	2 0	0 0	3 1/2
40000 Glas. Car., c, t, 30000 sh. £1 pd., 10000 15s. pl.	1 0	0 0	3 1/2
30000 Gobbett, c, t, Devon	1 0	0 0	0 0
10000 Gollards, c, t, c, Carnarvon	1 0	0 0	0 0
32000 Goginan, c, t, Cardiganshire	1 3	0 0	3 1/2
60000 Godevets, c, t, St. Cleer	1 0	0 0	1 1/2
60000 Great West Coast, c, t, St. Agnes	1 0	0 0	3 1/2
20000 Great W. Shepherds, c, t, Cornwall	1 0	0 0	1 1/2
20000 Grogwinion, c, t, Cardigan	2 0	0 0	0 0
10000 Gwyn-y-Mynydd, c, t, Flint (pref.)	4 0	0 0	1 1/2
8400 Hardshins, c, t, Westmore. (10s. sh.)	0 7	0 0	1 1/2
15000 Lady Ann, c, t, Llanarmon	1 0	0 0	0 0
15000 Llandeglan, c, t, Wales	1 0	0 0	0 0
5120 Lovell, c, t, Wendron	2 1	0 0	3 1/2
9000 Marke Valley, c, t, Linkinhorne	8 9	0 0	3 1/2
20000 Marston Consols, c, t, Flint	1 0	0 0	2 1/2
6144 Mount Carbis, c, t, Redruth	1 19	0 0	2 1/2
12000 New Caradon, c, t, St. Cleer	0 8	0 0	2 1/2
2400 New Cook's Kitchen, c, t, Illogan	10 13	0 0	3 1/2
4000 New Dolcoath, c, t, c, Carnabrian	3 0	0 0	0 0
10000 New Holmbush, c, t, c, Callington	3 0	0 0	0 0
6000 New Killy, c, t, St. Agnes	1 13	0 0	1 1/2
25000 New Langford, c, t, c, Callington	0 5	0 0	2 1/2
15000 New Redmoor, c, t, c, Callington	1 0	0 0	0 0
17500 New Terras, c, t, St. Austell	2 0	0 0	2 1/2
3500 New Tintworth, c, t, Lelant	6 0	0 0	0 0
12000 New Trumpet, c, t, Wendron	1 0	0 0	3 1/2
30000 New Van Cons., c, t, Glyn	7 0	0 0	0 0
12000 New West Caradon, c, t, Liskeard	0 9	0 0	2 1/2
3000 New Wheel Peavor, c, t, Redruth	0 10	0 0	0 0

Share.	Paid.	Last wk.	Clos. pr.
12000 North Blue Hills, c, t, St. Agnes	0 2	0 0	2 1/2
5228 North Busy, c, t, c, St. Agnes	3 6	0 0	2 1/2
10000 N. D'Eresby Mount, c, t, c, Cardigan	0 0	0 0	0 0
25000 North Goginan, c, t, Cardiganshire	1 0	0 0	1 1/2
6400 North Green Hurth, c, t, c, Cardigan	1 0	0 0	1 1/2

NON-DIVIDEND MINES—continued.

Share.	Paid.	Last wk.	Clos. pr.
5000 North Grogwinion, c, t, Cardigan	1 0	0 0	3 1/2
2000 North Levant, c, t, St. Just	15 3	0 0	0 0
50000 North Molton, c, t, c, Devon	1 0	0 0	0 0
65000 North Treasbery, c, t, St. Agnes	1 0	0 0	0 0
30000 Par, c, t, St. Austell	1 0	0 0	1 1/2
8000 Pedan-an-drea, c, t, Redruth	4 16	0 0	1 1/2
10000 Penegargreg, c, t, Carnarvonshire	1 0	0 0	0 0
12000 Polbreho, c, t, c, Cornwall	0 4	0 0	2 1/2
10000 Port Nigel, c, t, c, Carnar. (4000 sh.)	0 15	0 0	1 1/2
18000 Pr. Patrick, c, t, c, (als. 12000 pf. 10 p.c.)	1 0	0 0	0 0
12000 Prince of Wales, c, t, c, Calstock	1 7	0 0	10 1/2
12000 Prince Royal	0 2	0 0	5 1/2

36000	Russell United,* c, Tavislock	0	9	6...	3/4...	3/4	3/4
30000	Silver Hill,* Callington	1	0	0...	5/4...	3/4	3/4
50000	Sinclair,* I. B. Whitford	1	0	0...	1...	3/4	3/4
40000	Sorridge,* c, Horrabridge	1	0	0...	—	—	—
50300	South Caradon,* c, St. Cleer*	1	0	0...	3/4...	3/4	3/4
6000	South Carbis,* c, Redruth	0	10	0...	1/4...	1/4	1/4
8000	South Killy,* St. Agnes	0	10	0...	1/4...	1/4	1/4
6000	South Penrithal,* c, Gwennap	4	2	0...	3/4...	3/4	3/4
30000	So. Phoenix & Caradon,* c, Linkinh.	1	0	0...	3/4...	3/4	3/4
6000	South Tolarne,* c, Camborne	5	11	6...	3/4...	3/4	3/4
2043	South Wheel Croft,* c, Illogan	9	0	6...	6 1/4...	6 1/4	7 1/4
4530	South Wheel Farne,* c, Illogan*	11	4	0...	8 1/4...	7 1/4	7 1/4
3000	Standard,* I. B. Llanrwst	1	0	0...	1 1/4...	1 1/4	1 1/4
40000	Tamar,* I. B. Bearslaton*	1	0	0...	—	—	—
6020	Tindene	3	3	0...	2 1/4...	2 1/4	2 1/4
6000	Tolgulou United, St. Day	—	—	—	2 1/4...	1 1/4	2 1/4
12000	Trebartha Lemanne,* Northill	0	11	6...	—	—	—
50000	Tregontres and Old Polgooth Con.	1	0	0...	1 1/4...	3/4	3/4
8000	Trevaunance, St. Agnes	0	15	0...	2 1/4...	2 1/4	2 1/4

MINING EDUCATION.

The important question of the education of our mining engineers has again been brought under public notice, and our deficiency in technical training and education, as compared with the Continent, forcibly pointed out. The subject was recently most ably treated in an address at the Durham College of Science, Newcastle. But whatever may be our existing deficiencies, they were very much greater even a few years ago, when there were no mining schools or scientific colleges for imparting technical knowledge, and there is every reason to believe that our future managers of mines will be a very different class to those of the past. This will be all the more necessary, seeing that mining in many districts will have to be carried on at much greater depths than has ever yet been the case, and this will greatly intensify the difficulties and dangers inseparable from mining operations, requiring scientific attainments of a high class. More especially will it be the case as regards the gases found in the working of coal, and the explosions resulting from them. These are generally attributed to defective or inadequate ventilation, and by many are considered avoidable by the application of such laws of ventilation as are familiar in everyday experience. But this is really not the case, for there are sudden outbursts of gas, inundating a mine without the slightest previous notice, paralysing for a time the most active agency of ventilation, and creating a danger which it is impossible to exaggerate. Under constant pressure the gases dilate uniformly with the temperature, and there are certain laws laid down to determine the weight of a gas under a given pressure and temperature. Of course, the greater the depth the more important it is that the person in charge of such a mine should be thoroughly well versed in the general properties of aeriform fluids, the laws relating to their movement, and the causes of the circulation of air in mines. With a knowledge of these the means could be found to obtain the compensating current required in subterranean work, as the result of a thorough acquaintance with the physical laws relating to the movement of gases. Scientific training in this direction is consequently an existing necessity, and must become even more so. Then there is the best means that can be adopted for the ventilation of mines. This may be divided into physical and mechanical ventilation, which may be again divided into natural physical ventilation and artificial physical ventilation. The furnace, or artificial physical ventilation, has long been in operation, and is effected by means of a large fire in the airway near the upcast shaft, so that the heat is taken up uniformly by the air, the currents of the latter being more uniformly mixed before going upwards. But the system is attended with danger, for when the air returning from the working places is mixed with gas, sometimes verging on the explosive point, it flashes off in long flakes as it passes over the fire. Of late years, however, mechanical ventilation has made considerable headway, and for this we are indebted in the first instance to our continental engineers, for the Guibal fan is now in use at a great many places, in some instances providing 300,000 ft. of air per minute. Then there was the Schiele, Waddle, Lemielle, and other fans, which were to be found at mines both at home and abroad. The mining engineer should also be well versed in all that relates to fluids, both to prevent danger and for utilising as power, for as liquids possess the power of transmitting pressure in every direction they may be advantageously employed in accumulating and transmitting force. In addition to these requirements a knowledge of mechanical engineering should form a part of the mining engineer's education, together with a thorough acquaintance with the various modes of surveying, the setting out of work on the surface as well as underground, and the making of accurate plans. Deficiency as to the latter has led to most serious disasters—loss of life and loss of valuable property as well. With the changes that are likely to take place and with sinking such as those at Ashton Moss, where the shafts are something like 900 yards in depth, or even deeper, the resources of mining science will be taxed to their utmost, rendering it imperative that the mine manager should have a training and a scientific education very far in advance of most of those who now hold and have held a similar position in connection with comparatively shallow mines. Technical schools and scientific colleges have consequently become a necessity, and in such establishments we are far behind our Continental rivals. In connection with their mines, engineering, iron, and other works in France, Belgium, and Germany, there are technical and art schools, whilst it is only within the last few years that England could boast of even two or three similar establishments. At one time all improvements in the working of mines emanated from this country, but now the reverse is the case, and we have to adopt the inventions of our foreign engineers. This has been the case as regards the Guibal and other fans, the sinking of shafts through ordinary and water-bearing strata by the Kind-Chaudron system, the diamond drill, which was first discovered in 1836 by LESCHOT, a watchmaker of Geneva, who constructed a borer for cutting and polishing rubies by setting black diamonds in a wrought-iron ring. In addition, there is the rope counterbalance more recently introduced into this country, invented by Herr KOEPE, the chief engineer of the well-known firm of gunmakers, Messrs. KRUPP and Co., of Essen, and the expansion pumping-engine of M. GUINOTTE, of the Product Mines in Belgium. It may also be stated that dynamite, now so extensively used in this country is a German product. Such are the advantages derived on the Continent from scientific and technical training, and it is to be hoped that with the mining prospects before us in this country, requiring, as they will, increased intelligence, especially in mining, mechanical, and other sciences, that our students who seek to become managers of mines at no distant day will now have the same facilities placed within their reach as the same class on the Continent. This can only be effected by multiplying such institutions as the Durham College of Science, the Yorkshire College of Science, the Bristol School of Mines, &c.

On Monday, the workmen at the Gwerna House Coal Colliery, Maesycwmmmer, who have now been out on strike for nearly two months, owing to a dispute in the cutting price paid them for through-and-through coal and clean coal, met at the Angel Hotel, Maesycwmmmer, in the afternoon, when it was agreed to allow Mr. Jones, of the firm of Messrs. Partridge and Jones, to act as umpire; Mr. John Jenkins, Llanvabon, one of the house coal representatives of the Board of Conciliation, to act as arbitrator for the workmen, and Mr. E. R. Lewis, manager, for the colliery company, and it was agreed to resume work at once. The men, on Tuesday morning, took out their tools, and proceeded into their places in the workings, and resumed work, thus happily bringing about a termination of the unhappy dispute that has existed so long.

The Tees Union Steam Shipping Company have contracted with Messrs. R. Dixon and Company, of Middlesbrough, for the construction of a new steamer for the inter-colonial service. The vessel will have a gross tonnage of about 1300, is to be built under Lloyd's special survey, and will meet all the requirements necessary for the 160 A 1 class. Accommodation will be provided for about 110 passengers, and when fully laden she will run at the rate of not less than 10 knots on hour.

YESTERDAY the first remittance of gold, valued at £500, from the Russell Mine of North Carolina was received at the London office of the company.

Law Intelligence.

IN THE HIGH COURT OF JUSTICE.
CHANCERY DIVISION—OCTOBER 30.

Before Mr. Justice NORTH.

REID V. HADLEY.

This was an action brought by Mr. John Reid, on behalf of himself and all others the holders of mortgage debentures of the Virneberg Copper Mining Company (Limited)—except the defendants—against Messrs. Simeon Charles Hadley, Jonah Hadley, William Keith, and R. K. Roskilly, claiming execution of the trusts of certain deeds under which the first three defendants held a mine near Rheinbreitbach, in Prussia, and certain machinery and plant, as trustees for the debenture-holders. The plaintiff also claimed for the debenture-holders a declaration that they were entitled to the benefit of certain purchases of property of the company made by the defendant Roskilly, who had been the manager of the mine, and that the first three defendants might be removed from the trusteeship of the debenture deeds, and new trustees appointed in their place.

Sir Arthur Watson, Q.C., and Mr. R. M. Bray appeared for the plaintiff; Mr. Robinson, Q.C., and Mr. Bunting for the defendants S. C. and J. Hadley; and Mr. Frank Wright for the defendant Roskilly. The defendant Keith did not appear in the action, nor was he represented by counsel at the trial.

Mr. Justice NORTH, in delivering judgment, said that the mine in question was in Prussia and belonged to the Virneberg Copper Mining Company (Limited) which was formed in 1877. Debentures for over 6000*l.* were issued under two deeds of September 23, 1880, and May 27, 1881, whereby the mine and certain machinery and plant about the same were vested in the first three defendants (as trustees) by way of mortgage for securing payment of the debentures. Shortly afterwards the trustees became the registered owners of the mine, according to German law. The company was wound up in December, 1883, and so far back as October, 1882, the interest on the debentures was in arrear. There were certain German creditors of the company, and it was apprehended that a part of the property comprised in the debenture deeds might be seized by these creditors on taking proceedings in the German Courts. This property consisted of certain movable plant, which could not be effectually mortgaged under the German law, as it might be claimed by ordinary creditors. Mr. S. C. Hadley accordingly took certain steps. In his affidavit he said that he had been advised by a German advocate that, notwithstanding registration, the movable effects might be claimed by the German creditors, and that in order to protect the interests of the debenture-holders he ought to institute an action on their behalf as creditors, which he did; that the officer of the German Court proceeded in due course to act upon the judgment obtained in such action by a public auction, and that the larger portion was purchased for about 1100*l.* by Mr. Peters, of Cologne. His Lordship was not satisfied with the evidence of Mr. S. C. Hadley as to the instructions given for the German action. The affidavit also stated that in like manner the remaining property comprised in the deeds was sold by auction some months afterwards, and bought by Roskilly, the company's manager and representative, in Germany, for about 300*l.*; that the purchases were not contemplated, and that it was the deponent's intention in the interest of the debenture-holders (as he thought he could if they wished it) "that the purchasers should transfer the whole of their interests to the trustees upon payment of expenses, and so retain intact almost the whole of the property of the company." The affidavit went on to say—"It is not true, therefore, as alleged by the plaintiff, that I and my co-defendants took no steps to secure or realise for the benefit of the debenture-holders the property of which we were trustees; as I have shown, the said trustees have—and I in particular, acting under a power of attorney for them, have—in fact, taken the greatest precautions to protect the interest of the debenture-holders." It was suggested that the plant was sold under powers conferred upon the trustees (upon the request of holders of debentures for more than 4000*l.*) by the deed of May 27, 1880; but, assuming that their signatures were affixed to the request, no exercise of the powers of the deed could take place without notice to the company and the expiration of six months. There was no evidence of such notice, and six months had not elapsed when the sale took place. The sale was not within the power in the deed, and, moreover, there was no power to delegate the sale to the officer of the German Court, and such sale was unjustifiable. The sale was made for sums of 1100*l.* and 300*l.*, but what had become of the purchase-money? No step had been taken to receive it from the purchasers. The defendant, S. C. Hadley, made an excuse that the trustees had no funds, or not sufficient funds to commence proceedings, although they had taken steps to get the property sold. The plaintiff said that the trustees had committed a breach of trust, and ought to be removed. It had been suggested on behalf of Alderman Hadley that it was for the interest of the shareholders that the purchasers should not be pressed, with a view of getting back the property for the benefit of some new company. In his defence he said that he believed that the trustees could still arrange with both the purchasers that they should transfer the whole of their interest to the trustees upon payment of expenses, and in examination he said the property was in the hands of friendly purchasers; but that was simply an expectation. His Lordship was of opinion that the trustees had been guilty of a gross dereliction of their duty, as to commencing the proceedings, allowing them to go on, and then not getting in the purchase-money. The trustees stood in a different position. Mr. S. C. Hadley was the Chairman of the company, and he had taken the most active part. Whether Mr. Jonah Hadley had left matters to his brother, as he said, or had been consulted by him as to every step, he was equally liable. The case as to Mr. Keith was different. He had not attempted to defend this action, but as he had left matters to his co-trustees, he must also be removed from office. Roskilly was the manager and representative of the company. He now claimed the property purchased by him as his own. It was suggested by his counsel that there was no jurisdiction against him, as both he and the property were out of this country, but that objection could not be maintained as he had appeared in and defended the action. Then it was said that there was no equity against him, because, although he represented the company, the company were not parties to the action. But the mortgagees stood in the position of the company for this purpose. Roskilly had acted as the defendant in the German action, and did not resist the order made therein, and he had also become the purchaser of part of the property. He could not keep that property because he was an agent for the company, and acting in a fiduciary character. The price of 300*l.* given by him also appeared to his Lordship to be much below the real value of the property. He should, therefore, declare that he held the property purchased by him as a trustee. His Lordship also made an order removing the then trustees from office, but did not think it was necessary at once to appoint others, as there was a receiver of the property. He also declared that the trustees of the debenture-holders were entitled, on their behalf, to the benefit of the purchase by Roskilly, and to the benefit of the judgment under which the property was sold. The Messrs. Hadley having opposed these proceedings must pay the costs of the action, and Roskilly must pay the costs so far as the plaintiff claimed relief against him, but there would be no order for costs against Mr. Keith, though he would have to bear his own costs.

Sittings in Banco before Mr. JUSTICE MATHEW and Mr. JUSTICE A. L. SMIT—OCTOBER 30.

IN THE MATTER OF TWO CONVICTIONS UNDER THE SALMON FISHERIES ACT, 1865, EX PARTE THE THRELKELD LEAD MINING COMPANY.

Mr. CHARLES RUSSELL, Q.C. (with whom was Mr. Mattinson) applied in this case for a rule nisi calling upon certain justices sitting at Keswick to show cause why two convictions by them of the Threlkeld Lead Mining Company should not be brought up into

this Court by writ of *certiorari* to be quashed, on the ground that one of the Justices, Mr. Spedding, had not only been a member of the body—the Derwent Conservancy Board—by whom the summonses had been taken out, but had also taken an active part in the institution of the proceedings against the Threlkeld Company, and had, in fact, in a report made by him as a member of the Derwent Board, pronounced a judgment on the case before it had come before him, when sitting as Chairman of the Bench at Keswick. The offence charged against the Threlkeld Company was that of having allowed water to flow from their works so impregnated with lead as to be destructive to fish in the River Derwent, on both June 18 and July 14. When the first case had come before the magistrates, an objection had been taken that the summons had been served on the secretary at his private residence, and not at the registered office of the company. Mr. Spedding had been one of the justices who had over-ruled this objection and convicted the company on the first summons. On the second occasion Mr. Spedding had left the Bench and given evidence against the company.

Mr. Justice DAY remarked that the point on which Mr. Spedding had ruled as to the summonses having been properly served had been merely a preliminary one, and that the fact that he had taken part in deciding that matter could scarcely be said to have invalidated subsequent decisions of his brother justices, in which he had himself taken no part.

Mr. CHARLES RUSSELL said that he had no intention of suggesting that Mr. Spedding had done anything which he had not considered to have been his proper duty as a conservator. Of course, he would not, as fact, have been disqualified from adjudicating on any case under the Salmon Fishery Acts, by reason of his being a conservator (s. 61, Salmon Fishery Amendment Act, 1861, 28 and 29 Vic. c. 121), but he had disqualified himself from adjudicating on the case by the active part which he had taken in the institution of the proceedings.—The Court granted a rule nisi, but with reference only to the conviction for the first offence.

Before the Llanely magistrates, on Wednesday, Mr. J. R. Turnock, of the Spitty Tin-plate Works, Loughor, charged 16 of the employees with breach of contract. There was a counterclaim on defendants' part for wages alleged to be due from Mr. Turnock, which the latter, in the course of the case, admitted. Mr. C. H. Glascoine (instructed by Mr. Mansel Rees) appeared for the prosecution, and Mr. David Randall defended the workmen, Lewis Afan being also present. Mr. Glascoine, in opening the case said that by the rules of the works, which were in the hands of each man, no one could leave work without giving 28 days' notice. On the 30th of September the defendants gave notice to the foreman that they would not come to work the following morning, which notice they carried out, thus causing the breach of contract complained of. The damages claimed were 5*l.* per man, which was considered reasonable considering the deterioration of stuff caused by the action of the men. He did not know the cause of the strike, but Mr. Turnock had had occasion to complain of bulged plates. After the evidence had been given, Mr. Randall, on defendant's behalf, stated that they understood Mr. Turnock to say he was not going to pay them, because of the damaged plates. Subsequently, Mr. Turnock refused to grant the men an interview. Mr. Turnock now explained, amidst laughter, that he did not do so because he did not understand Welsh nor they English. He then announced, through Mr. Glascoine, that he did not blame defendants for the spoiled plates, but he blamed the women and children. If defendants acknowledged their error in causing inconvenience and endeavoured to repair the injury done by their conduct, he would withdraw the case. Mr. Randall, on the workmen's behalf, agreed, and also consented to withdraw the summons on their part, each side to pay its own costs. The decision was received with loud cheers.

MINING DEVELOPMENT AT LEADVILLE.

The production of ore involves the expenditure of an immense amount of money, and, hence, is beneficial to almost every citizen in a mining community. An ore crop cost more than any other product of the ground, and after it is surfaced it still must pass through many hands before it can be converted into marketable shape. The Leadville Herald has, in an article below given, furnished an approximate idea of the cost of raising ore from the ground, by specifying the character of machinery necessary for this part of the mining business. If transportation, treatment, and refining charges are taken into account it can readily be seen that it requires both value and bulk of ore to constitute a steady dividend-paying mine. Leadville from its very infancy, says the Herald, promised extraordinary results, and since 1879 has maintained the gratifying reputation of being the largest silver and lead producer in the world. Like most mining centres its beginning was humble, and for some time after the first discovery of carbonates, no deep shafts or monstrous pumping and hoisting machinery were thought of. As development continued and the magnitude of the ore bodies disclosed, increased the necessity for hoisting machinery became more apparent. There is no record of the first hoister brought here, but it was probably the machine with a box-shaped boiler, that was employed for years on the Rock Mine, and hoisted thousands of tons of ore from this property, and is now supplying power for a small concentrating mill in Stray Horse Gulch. The opening of the Rock and La Plata Mines was followed by a score of others in quick succession, and with the opening of the mines came the introduction of improved hoisting machinery. The first hoisting plant of any magnitude was the treble drum hoister, placed on the Leadville Consolidated Company's property on Carbonate Hill. Next followed the flat cable double-spool hoister on the Chrysolite, and from that time onwards numerous fine hoisting plants made their appearance. Improved pumping machinery was slow to make its appearance in this district, and for a year or more oil well and ordinary steam sinking pumps were used exclusively. Cornish plunger pumps were probably first employed in the Big Chief Mine, followed by the Clontarf, Robert E. Lee and Denver City Mines. To-day they are quite extensively used throughout the district. Steam pumps, placed in stations, were first introduced by the manager of the Chrysolite Mine. The first hoister run underground was placed in the 10th level of the Iron Mine. To-day there are not less than 165 hoisting-engines employed in the Leadville district, and probably 50 steam and plunger mining pumps. Much of this machinery was placed two to five years ago, yet it is safe to say that twice as much more will be erected here in the next few years. A surprising large number of plants are at present in course of erection in Leadville, or have been ordered, and will be placed in position in a very short time. A number of the plants are very large, and involve the expenditure of \$10,000 to \$25,000. Among the plants now being placed in position are the following:—

Corra Belle—Two 10 in. Cornish plunger-pumps and one large hoisting-engine, together with boilers. Robert E. Lee—The largest vertical sinking-pump ever shipped to Colorado. Printer Boy Mine—Two 8 in. Cornish plunger-pumps, 30 horse-power hoister and boiler. Little Silver—Two 10 in. Cornish plunger-pumps and rigging. Henriett—Two large steam-pumps. Louisville—Two steam-pumps and additional boilers. Crown Point—One 60 horse-power hoisting-rig. Forest City Mine—One 50 horse-power hoister. Jay Eye See—Two steam-pumps. Belgium—Large hoisting and pumping plants. The list of machinery ordered and now on the way is as follows:—New Year—50 horse-power hoister and two duplex steam-pumps. Forepaugh Mine—Two large duplex pumps. Tip Top—Powerful hoisting and pumping machinery. Weir and Goggenheim—Hoister and pumps for 700 ft. shaft. Among the important mining plants that have been received by Leadville mines during the past few months may be mentioned the following:—Wolfstone—Two pumps, costing \$25,000, and three boilers. Morning Star—Two large steam-pumps. Queen Consolidated—Two pumps and two boilers. New Pittsburgh—Lipe and Dickson lease—One 40 horse-power hoister and several pumps. Clear Grit, Leo, White Cap, and other mines have lately been supplied with new boilers, in addition to those previously mentioned. The Wilkesbarre, No. 2, Louisville, Venture, Four per Cent., Star of the West, American

Liberty, Cleveland, and nearly a score of other mines have recently been provided with small hoisting-engines.

Nor is Leadville behind other mining towns in its purchase of milling machinery. Contracts are now out for the erection of a \$40,000 concentrating mill for the Colonel Sellers Mine, a \$20,000 mill for the St. Kevin Mine, and several others. There have been added to the Leadville Metallurgical Works within a short time past two cupelling furnaces, five embrey tables to the Lillian Mill, a concentrating mill of nine Triumph tables at the Wolfstone Mine, four lifts at the McCarthy Mine, 10 stamps at the Antioch Mill, concentrating mills at the Maid of Erin Mine, and at the First National Mine. The cost of the mining machinery now in course of erection in Leadville will foot up nearly \$200,000. Over \$100,000 were expended for the same purpose last spring, making a total so far this year of \$300,000, with fair prospects of the amount swelling to \$500,000 before the close of the year. The expenditure of \$500,000 in mining and milling machinery in Leadville proves that the mines of the district have been making money for their owners in the past, as nearly all the mines on which improvements are being made are owned by Colorado people. The fact also demonstrates the fact that mining is increasing in magnitude, and that deeper and more expensive work is in progress, with prospects of proportionately increased profits. The introduction of improved and expensive machinery is, however, not the only favourable indication of Leadville's future. There are at present nearly a score of shafts being sunk in virgin ground, four-fifths of which will certainly encounter good ore. Among the list may be mentioned the Little Silver, Leo, Moya-menning, Weir and Guggenheim, Quartette, Tip Top, Alleghany, American Liberty, New Year, Imes, Luzerne, Cora Belle, Queen Consolidated, Nisi Prius, and Star of the West. All of these shafts will have to be sunk to depths of 400 to 600 ft., and will open up entirely new country. Success in any one of them will pay the expense of the whole lot, yet there is no doubt but four-fifths of them will strike good ore. With such prospects before it, Leadville cannot fail to retain her position as the largest and most productive mining town in the West.

THE DEVELOPMENT OF TECHNICAL INSTRUCTION IN METALLURGY.*

By Professor W. CHANDLER ROBERTS, F.R.S.,

Chemist of the Mint and Professor of Metallurgy in the Royal School of Mines, London.

The opening of the newly organised class of metallurgy in this well-known institute is another important step in the technical teaching of the country, and I have accepted the invitation of the council to deliver a brief address on this occasion with much pleasure, for more than one reason. I recognise in the efforts your council are making to foster technical instruction in this special subject the realisation of views I have long held; and, further, the lecturer Mr. Hiron, by whom the metallurgical instruction here has now been conducted for some years, is my friend, and was a student of my own at the Royal School of Mines. I am anxious, therefore, to wish him success on entering on a more extensive sphere of usefulness. In a circular which has been addressed to the manufacturers of Birmingham your council has stated its conviction that:—

"A more complete course of metallurgy than has hitherto been possible here cannot fail to exert a great influence on the trades of the town and district, and it is hoped that by making workmen better acquainted with the scientific principles on which their trades are based, it will be possible to battle more successfully with our foreign competitors, who in many respects have the advantage of us in the superior scientific training they have received."

While we admit that this is true, it may be well to remember a caution given by an old writer, W. Carnwile, in 1583, who held that judgment was more to be commended in recognising the skill of certain foreign artificers and craftsmen, than in ignoring the ability, or, as he called it, the "activity" of our people, "who," he says, "owe" their "advantage" to be as skilful in myning, as hard and diligent laborers, and as good chepe workmen in that kind of travell as are to be found in Europe.

It is not a little strange that the systematic instruction in metallurgy in this country, to which the metal industries are all-important, should be of comparatively recent date. We appear to have imitated the system of the early metallurgists and alchemists (and for their work I can hardly claim too much respect), who handed down their traditions and discoveries through one or two pupils, for we find the master and disciple system surviving with singular vitality into recent times.

It is well known, especially in Birmingham, that metallurgy has progressed in two ways—first, by the technical skill of the craftsmen leading them a long way in advance of theory to the acquisition of important facts; and, second, by discoveries resulting from the application of purely scientific methods of procedure. The German miners and smelters introduced into this country by Queen Elizabeth were skilled craftsmen; but still the greatest advances in theoretical metallurgy were, until quite recent times, the result of individual and not collective teaching. For just as in the 13th century Albertus Magnus had St. Thomas Aquinas for his pupil, both being metallurgists, so in the 17th century Becher, who lived in this country and smelted tin here, transmitted to his famous pupil Stahl the theory of Phlogiston, which was mainly being built up on a metallurgical basis, and the effect of which, both on scientific and technical progress, was so marked. Towards the end of the 16th century what is now called technical education was pleaded for by an accurate metallurgical writer, Bishop Watson, Professor of Divinity at the University of Cambridge, who strongly insisted on the importance of the purely economic side of our subject, and who urged that the improvement of metallurgy and other mechanic arts dependent on chemistry would best be entrusted to an "academy, the labours of which should be devoted to that particular purpose." In my opinion, from the time, 1782, when this wise Prelate wrote, to the foundation of the Royal School of Mines in 1851, there is no event affecting the systematic teaching of our subject of anything like equal importance to the appointment of Dr. Percy as the first holder of the chair of metallurgy there.

I have elsewhere attempted to trace the development of the metallurgical work of the country to their origin in Dr. Percy's labours. The evidence of their value is clearer to me now than when I delivered my introductory lecture at the School of Mines five years since, and the sense of the importance of Dr. Percy's influence will, I trust, deepen as my own experience grows. We must, however, devote ourselves now chiefly to the progress that has been made quite recently. The results of the investigations of the Select Committee appointed in 1868, to enquire into the provisions for giving instruction in theoretical and applied science to the industrial classes will be familiar to many of you, and the importance of the question in relation to metallurgy has been specially recognised by the Lords of the Committee of Council on Education, who, in 1882, took what was, from our point of view, the very important step of directing that metallurgy should be taught, as far as might be possible, practically to the students who present themselves for the May examinations. I am glad to be able to claim that the school we open to-night was, under the guidance of your council, mainly the outcome of the action of the Science and Art Department, which is now, I am satisfied, making full provision for the primary instruction in metallurgy of forgers and artificers throughout the country, a view which is well borne out by the results of the examinations I have recently conducted. Its direct influence on the higher teaching of metallurgy I will endeavour to trace later on.

The advantages of technical education which the pressure of necessity is now slowly forcing on the country is so generally appreciated in Birmingham that I need only dwell on the special claim of metallurgical teaching to the support of all who are interested in the great industries of the town. While it is unnecessary for me to justify the scientific teaching of the subject, it is perhaps more important than ever that the true relations of theory and practice should be

clearly understood; and here considerations based upon the dual character of our work—that is, its practical and its scientific aspects, again present themselves. There are many metallurgical operations in conducting which the highest success can alone be secured by the subtle skill of sight or touch, and the power to deal with new and unfamiliar conditions which education might impart to workmen would appear almost to diminish rather than increase the usefulness of those entrusted with certain definite operations. My earliest impressions on this point were gathered in Birmingham, the principal works of which I visited 16 years ago, together with the late M. H. de Jacobi, of St. Petersburg, whose name will be familiar to you, as he was one of the earliest workers in the field of electro-metallurgy; and I then learned how many men there are carrying on routine work with wonderful exactness, yet their only school was the workshop, and not the lecture-room or laboratory. It may, however, be urged that even such practical men of the high order of merit I am contemplating should at least know certain scientific facts by which their practice may be supported; and no less an authority than Jules Simon, formerly Minister of Public Instruction in France, has said—"The practised eye and the sure hand are worth much, but they do not replace science. The smith, who knows the disadvantage of too rapid oxidation, who understands why throwing water on the surface of ignited fuel increases the heat of the centre of the mass; the puddler who takes into account the effects of a reducing flame, and who employs it or an oxidising flame at will; such men are evidently the most important workmen, more skilful for current needs, lest disconcerted by an accident, less embarrassed by having to describe an operation, less slaves to routine, quicker to adopt a new process." He adds—"But without speaking of the daily details of work, of accidents guarded against, or of remedies improvised, is it nothing that by training workmen properly an impulse is given to the genius of discovery. . . . It is sometimes necessary to separate practice and theory because life is short, but they should always be combined when possible because life is complex. It is necessary to join practice with theory, as in another order of ideas it is necessary to unite capital and labour, because one only sees a problem thoroughly by looking at both sides of it." The more intelligent the workman becomes the more he will appreciate the ability of those who direct him. He will, as the result of education, take keener interest in his work, and his social position will be materially improved, even though his daily wage is not augmented.

I cannot trace to-night the methods that are adopted on the Continent to ensure the efficient training of artificers and foremen; the literature of technical instruction is now abundant enough, and I must refer you to the various reports which have from time to time been published; but permit me to say that in the laboratories you will presently visit, and in the appliances and arrangements which have been provided by the council, you have an admirable equipment, and in my opinion the Midland Institute is in a position to carry out with high efficiency the kind of instruction which is contemplated. The question now naturally presents itself, what evidence or probability is there that the education to be provided will be advantageous in the sense that it will "pay," which, of course, is the object of all improvement in conducting metallurgical operations. I do not want to multiply references to authority, but let me once more appeal to the Bishop, Dr. Watson, to whom I have referred as being one of the first to plead for systematic technical instruction. He said, a century since, "There is a certain standard of perfection in the exercise of every art which is not always well understood. . . . and he who should apply himself to the solution of the problem (the extraction of the greatest possible quantity of metal from any particular kind of ore) . . . must take into consideration another circumstance of as much importance as the quantity of metal to be extracted—the expense attending the operation."

In estimating the advantage of special technical instruction in metallurgy, it is necessary to bear in mind the two characteristic features of the art of extracting metals from their ores and fitting them for industrial use. First, the history of metallurgy abounds with instances showing that an apparently trifling improvement in an operation, or, it may be, in the composition of an alloy, has been followed by large pecuniary gain, the amount of which would seem to be out of all proportion to the scientific merit of the discovery which led to the change. A suggestion gathered in the laboratory may prove a source of wealth when developed in the works, and it will be the special duty of the teachers who will soon attack the comprehensive syllabus of the practical classes to indicate the direction in which improvements may be made, and to suggest the nature of the changes to be introduced into practice.

The second prominent feature of metallurgy to which I would allude is the enormous influence exerted on a large mass of metal by a trace of another metal or metalloids—that is, by a quantity so small that it appears to be out of all proportion to the mass in which it is distributed. I might adduce instance after instance in support of this point, but it is unnecessary to do so. Workers in the precious metals on Birmingham well know how small a trace of impurity will render gold alloys brittle; and, conversely, it is equally well known that the addition of a very small amount of certain metals to nickel will convert a very brittle mass into a perfectly malleable and ductile one. Electro-platers are familiar with the consequences which may result from a slight change in the composition of a depositing bath. Or, to turn to less familiar points, I think you would be surprised if it were possible to show you some experiments I have recently made on the effect of the tenacity of certain alloys when the surface tension of wires, into which the alloys were drawn, is released by touching the wires with a mild pickling solution. Consider, again, what a large proportion of the vast field presented by metallic alloys remains entirely unexplored, and how substantial the rewards of discovery in this direction are. In Birmingham what may be called the mechanical side of metallurgy is specially important, as the industries of this town are so largely devoted to working metals, and not to extracting them from their ores. The laboratories here are specially arranged in view of this fact.

It will be of the utmost importance to show the way in which preventable waste in conducting mechanical operations on metals may be reduced to the narrowest possible limits, by vigilant individual efforts, and to point to the advantage a careful workman has over one who is less attentive, though not less skilful.

It will be interesting to watch the effect of the establishment of this and other classes in the industrial centres, in enabling the higher instruction in metallurgy to be developed; and as Birmingham will, I trust, continue to furnish many exhibitors to the Royal School of Mines at South Kensington and Jermyn-street, it may be well for me to endeavour to indicate what is, and should be, the nature of the instruction offered in schools of mines generally.

To take first our own School of Mines, which for more than 30 years has provided technical instruction in metallurgy and mining. Since its establishment in 1851 it has trusted to elaborate lectures, and has devoted special care to a complete system of laboratory work. The Ecole des Mines, in Paris, adopts a system which is in the main the same; but the students visit and report upon works during their vacation—a plan I have endeavoured to imitate since my appointment to the chair at the School of Mines in 1880. Second, there is what may be called the system of Freiberg, as it is so well represented at the great school in Saxony, where the men study metallurgy theoretically, in lectures to which a somewhat limited laboratory course is added, the great feature of the instruction being the facilities the men have for spending a portion of each day in the Halsbrückner Hütte or the Muldner Hütte, these being the great works of the district in which the school is situated. And, finally, there is the system adopted in America, especially at the School of Mines, Columbia College, New York, and at the Massachusetts Institute of Technology at Boston, where, in addition to laboratory work as ordinarily understood, students carry out metallurgical operations, more or less experimentally, it is true, but, as an engineer would say, on a scale of nearly "12 in. to a foot."

It is somewhat difficult to compare the relative merits of these apparently distinct systems, because the conditions of the countries in which they are in force are so different. In London, Paris, New

York, and Boston the mining schools are situated at some distance from metallurgical centres. From an American point of view the distance of London from South Wales, Lancashire, and Yorkshire must seem insignificant; but distance is not the only difficulty to be met. In this country the works are not under Government control, and students, therefore, owe their admission to works to the generosity of the owners, which has hitherto been so liberally exercised in the case of my own students that the absence of State influence has not been felt. On the Continent the control of works by the Government enables students to visit the various establishments as a matter of right, and this fact has doubtless determined the situation of certain mining schools. Although no strict comparison can be made the following appear to me to be the prominent points connected with the three systems. Our own school was established at a time when, as we have seen, the systematic teaching of metallurgy in this country had been neglected. It was only natural, therefore, that extreme importance should be attached to laboratory work, and especially to researches, having for their object the investigation of obscure points in metallurgical practice. There is, in fact, far too great a tendency at the present day to lose sight of the importance, from an educational point of view, of basing the teaching of students on a thorough knowledge of the chemical reactions upon which metallurgical operations must depend, and on rigorous and minute chemical analysis. I can only repeat an earnest appeal of Sir F. Abel* to the younger chemists, not to underestimate the value and importance, in reference to the advancement of science, of the labours of the plodding investigator of analysis.

The wealth of results obtained by the investigations conducted by my distinguished master and predecessor; and, above all, by the success in all quarters of the world of our School of Mines men affords an abundant justification of the plan which has hitherto been adopted; we have at least trained a body of accurate observers ready at all times to bring scientific reasoning to bear upon new sets of all conditions.

With regard to the Freiberg system, its chief merit appears to me to consist in giving the students broad views as to practical details, if it does not familiarise them with the real difficulties of metallurgical work. I am always glad to receive students in my own class who come from metallurgical centres; but, on the other hand, in my opinion it is very easy to overrate the advantage to be derived from placing the advanced students in the midst of works. No doubt a metallurgical atmosphere pervades the works, and there is much in the spirit of the student's surroundings, but the number of metals treated in any one district must necessarily be limited, while many processes of vast importance are wholly unrepresented. Surely, it may be urged, the frequent opportunities for seeing metallurgical operations must be of great benefit to the student; but consider how short a time a student, who is preparing for the higher branches of his profession, can possibly give to the purely theoretical work which he must get through. Such a student has no leisure in addition to that which should be set aside for exercise; and if he had leisure, I do not think he would be putting it to the best advantage if he were to devote it to looking on at a metallurgical operation conducted by someone else; and I believe that no system by which a student accompanies a demonstrator, or even a local foreman, to works, and only sees the successes and not the failures of other people's labours really affords him adequate instruction.

I agree entirely with the remarks of my friend Professor R. H. Richards, Boston, upon this point. He observes "that large works cannot afford to spoil a furnace charge to show a student what happens from a little carelessness. A well-regulated establishment may go on for a long time without such a slip, and unless the superintendent is used to giving instruction, or takes pleasure in it, a student may be months at a works without finding out what the key to the success of the establishment is."

In the American schools of mines plant of sufficient power is provided to render it possible to concentrate by the ordinary dressing appliances no less than 4 tons of any given ore, and to treat the enriched product by suitable metallurgical process, adopting either "dry" or "wet" methods, or both combined, as the necessities of the case demand; and it may be added that the "plant" provided is sufficiently comprehensive to permit the adoption of varied methods of treatment.

The foregoing is a brief sketch of the plan which is being gradually introduced into the Royal School of Mines. During the past session one student studied the extraction of gold from pyrites as practised at Grass Valley, California, and another extracted silver from its ore by pan amalgamation. Even in the metallurgy of iron much may be done by small appliances, and I am specially grateful to Mr. P. C. Gilchrist for having given to the School of Mines the small blowing engine and accumulator used by himself and the late Mr. Sydney G. Thomas in their well-known researches which led to the development of the basic-Bessemer process.

The experience I have already gained of this method of instruction has satisfied me that by actually conducting experiments on a large scale students realise more fully than in any other way the absolute dependency of metallurgy upon chemistry. The value of assaying, in controlling the results of their work, becomes evident, and the men learn, as Professor Richards observes, "by their own experience that little losses taking place here and there and everywhere in their work mount up enormously in their final account of stock, and they are led to understand that failures in mines and works quite as often result from errors in judgment as they do from poverty of the deposits or defects in the processes adopted."

It will, I trust, have been understood that I have been speaking only of the training of a student; his career as a metallurgist can only be perfected in the works, because the manager has not only to deal with metals but with men.

We need never fear that by any amount of technical education we shall, by moulding men to the ideas of any particular school, set limits to the efforts of genius; the unexpected will happen in metallurgy in the future as in the past. Individual character will always assert itself, and the necessity for individual exertion will be as great as ever. We may help intelligence to do what it can; genius will do what it must.

Increased efficiency in the instruction in the industrial centres will directly influence, and will be reflected in, the teaching of the Royal School of Mines, so that, if only "for my brethren and companions' sakes, I will wish thee prosperity."

* British Association Report, Plymouth (1877), p. 44.

† Paper read at the Wilkes-Barre meeting of the American Institute of Mining Engineers (1870).

The Great Eastern is to be used as a coal hulk. After being fitted with the necessary machinery, she will take in a cargo of South Wales coal, and then be dispatched to Gibraltar, where she will probably be permanently stationed. She will be replenished with coal as required by steamers from Cardiff.

Mr. George Müller, the well-known head of the Orphan Homes at Bristol, announces that during the last year he has received £1,558. "In answer to prayer," not a single donation having been solicited.

GAS SHARES.—The principal business in these shares, according to this evening's report of Messrs. W. L. Wynn and Co., of the Stock Exchange and Fenchurch-lane has been:—Bahia, 25½ to 25½; Bombay, 6½ to 7; ditto New, 5½; British Gas, 43½; Buenos Ayres, 14 to 14½; ditto Six per Cent., 108½ to 110; Brentford, 220½; Commercial Consolidated, 257; Continental Union, 32½; Gas Light, A, 233½ to 235; ditto H, 154½ to 155; ditto Four per Cent., 109½; Imperial Continental, 215 to 216½; Metropolitan of Melbourne Five per Cent., 108½ to 108½; Monte Video, 18½ to 18½; Oriental, New, 8; Ottoman, 6½ to 6½; Para, 4½; Rio de Janeiro, 24½ to 24½; South Metropolitan, A, 277; ditto, B, 228½ to 227. Gas stocks weaker.

BLLENDE.			
Date.	Mines.	Tons.	Price per ton.
Oct. 29—Roman Gravel.	30	£ 2 12 0	English Crown Co.
LEAD ORES.			
Date.	Mines.	Tons.	Price per ton.
Oct. 29—Foxdale	120	£ 9 8 0	Sheldon, Bush, & Co.
29—Wearside	50	11 15 0	Walker, Parker, & Co.
— ditto	50	11 14 0	Cookson and Co.
— ditto	50	11 15 3	ditto
— ditto	15	11 15 0	ditto
— ditto (slag)	15	11 9 0	Walker, Parker, & Co.
— ditto (fume)	25	10 10 0	Locke, Blackett, & Co.

Provincial Stock and Share Markets.

CORNISH MINE SHARE MARKET.—Mr. S. J. DAVEY, mine share-dealer, Redruth, writes under date October 29:—Our market has been easier for most shares this week, and business has been very slow. New Kitty shares, however, have risen $\frac{1}{2}$. To-day the tone is steadier. Following are the prices:—Blue Hills, $\frac{3}{4}$ to $\frac{1}{2}$; Carn Brea, $\frac{2}{3}$ to $\frac{1}{2}$; Cook's Kitchen, $\frac{9}{16}$ to $\frac{1}{2}$; Dolcoath, $\frac{7}{16}$ to $\frac{1}{2}$; East Blue Hills, $\frac{1}{4}$ to $\frac{1}{2}$; East Pool, $\frac{4}{16}$ to $\frac{1}{2}$; Killfretre, $\frac{1}{8}$ to $\frac{1}{2}$; New Cook's Kitchen, $\frac{3}{16}$ to $\frac{1}{2}$; New Kitty, $\frac{1}{4}$ to $\frac{1}{2}$; Pedn-an-drea, $\frac{1}{4}$ to $\frac{1}{2}$; Prince Royal, $\frac{4}{16}$ to $\frac{1}{2}$; Polbarro, $\frac{1}{4}$ to $\frac{1}{2}$; South Condurrow, $\frac{5}{16}$ to $\frac{1}{2}$; South Crofty, $\frac{5}{16}$ to $\frac{1}{2}$; South Wheal Frances, $\frac{7}{16}$ to $\frac{1}{2}$; Tincroft, $\frac{5}{16}$ to $\frac{1}{2}$; Trevaunance, $\frac{2}{16}$ to $\frac{1}{2}$; West Basset, $\frac{2}{16}$ to $\frac{1}{2}$; West Frances, $\frac{7}{16}$ to $\frac{1}{2}$; West Godolphin, $\frac{1}{4}$ to $\frac{1}{2}$; West Kitty, $\frac{7}{16}$ to $\frac{1}{2}$; West Polbarro, $\frac{1}{4}$ to $\frac{1}{2}$; West Wheal Seton, $\frac{4}{16}$ to $\frac{1}{2}$; Wheal Agar, $\frac{1}{4}$ to $\frac{1}{2}$; Wheal Basset, $\frac{5}{16}$ to $\frac{1}{2}$; Wheal Grenville, $\frac{1}{4}$ to $\frac{1}{2}$; Wheal Kitty (St. Agnes), $\frac{3}{16}$ to $\frac{1}{2}$.

—Mr. M. W. BAWDEN, Liskeard, writes under date October 29:—The mining market continues quiet with almost an entire absence of business, the London market appearing to be more active. The Mining Division, and prices are mostly nominal:—Anderton United, $\frac{1}{4}$ to $\frac{1}{2}$; Bedford United, $\frac{4}{16}$ to $\frac{1}{2}$; Blue Hills, $\frac{1}{4}$ to $\frac{1}{2}$; Carn Brea, $\frac{2}{3}$ to $\frac{1}{2}$; Cook's Kitchen, $\frac{9}{16}$ to $\frac{1}{2}$; Dolcoath, $\frac{7}{16}$ to $\frac{1}{2}$; Devon Consols, $\frac{2}{16}$ to $\frac{1}{2}$; East Blue Hills, $\frac{1}{4}$ to $\frac{1}{2}$; East Pool, $\frac{4}{16}$ to $\frac{1}{2}$; Gunnislake (Clitters), $\frac{2}{16}$ to $\frac{1}{2}$; Killfretre, $\frac{1}{8}$ to $\frac{1}{2}$; Marke Valley, $\frac{2}{16}$ to $\frac{1}{2}$; New Kitty, $\frac{1}{4}$ to $\frac{1}{2}$; New South Consols, $\frac{1}{4}$ to $\frac{1}{2}$; Pedn-an-drea United, $\frac{1}{4}$ to $\frac{1}{2}$; Old Shepherds, $\frac{2}{16}$ to $\frac{1}{2}$; Phoenix United, $\frac{1}{4}$ to $\frac{1}{2}$; Prince of Wales, $\frac{5}{16}$ to $\frac{1}{2}$; South Consols, $\frac{2}{16}$ to $\frac{1}{2}$; South Crofty, $\frac{5}{16}$ to $\frac{1}{2}$; South Wheal Frances, $\frac{7}{16}$ to $\frac{1}{2}$; Tincroft, $\frac{5}{16}$ to $\frac{1}{2}$; Trevaunance Consols, $\frac{2}{16}$ to $\frac{1}{2}$; West Basset, $\frac{2}{16}$ to $\frac{1}{2}$; West Frances, $\frac{7}{16}$ to $\frac{1}{2}$; West Kitty, $\frac{7}{16}$ to $\frac{1}{2}$; West Phoenix, $\frac{3}{16}$ to $\frac{1}{2}$; West Seton, $\frac{4}{16}$ to $\frac{1}{2}$; Wheal Agar, $\frac{1}{4}$ to $\frac{1}{2}$; Wheal Basset, $\frac{5}{16}$ to $\frac{1}{2}$; Wheal Grenville, $\frac{1}{4}$ to $\frac{1}{2}$; Wheal Kitty, $\frac{3}{16}$ to $\frac{1}{2}$; Wheal Pevor, $\frac{3}{16}$ to $\frac{1}{2}$.

—Messrs. ANNOT and WICKETT, stock and share brokers, Redruth, write under date October 29:—The market has been quiet this week, and prices have receded a little, but there seems a little more disposition to invest in progressive mines. East Pool and Dolcoath are steady at quotations. Closing quotations herewith:—Blue Hills, $\frac{3}{4}$ to $\frac{1}{2}$; Carn Brea, $\frac{2}{3}$ to $\frac{1}{2}$; Cook's Kitchen, $\frac{9}{16}$ to $\frac{1}{2}$; Dolcoath, $\frac{7}{16}$ to $\frac{1}{2}$; East Blue Hills, $\frac{1}{4}$ to $\frac{1}{2}$; East Pool, $\frac{4}{16}$ to $\frac{1}{2}$; Killfretre, $\frac{1}{8}$ to $\frac{1}{2}$; Marke Valley, $\frac{2}{16}$ to $\frac{1}{2}$; New Kitty, $\frac{1}{4}$ to $\frac{1}{2}$; New South Consols, $\frac{1}{4}$ to $\frac{1}{2}$; Pedn-an-drea United, $\frac{1}{4}$ to $\frac{1}{2}$; Old Shepherds, $\frac{2}{16}$ to $\frac{1}{2}$; Phoenix United, $\frac{1}{4}$ to $\frac{1}{2}$; Prince of Wales, $\frac{5}{16}$ to $\frac{1}{2}$; South Consols, $\frac{2}{16}$ to $\frac{1}{2}$; South Crofty, $\frac{5}{16}$ to $\frac{1}{2}$; South Wheal Frances, $\frac{7}{16}$ to $\frac{1}{2}$; Tincroft, $\frac{5}{16}$ to $\frac{1}{2}$; Trevaunance Consols, $\frac{2}{16}$ to $\frac{1}{2}$; West Basset, $\frac{2}{16}$ to $\frac{1}{2}$; West Frances, $\frac{7}{16}$ to $\frac{1}{2}$; West Kitty, $\frac{7}{16}$ to $\frac{1}{2}$; West Phoenix, $\frac{3}{16}$ to $\frac{1}{2}$; West Seton, $\frac{4}{16}$ to $\frac{1}{2}$; Wheal Agar, $\frac{1}{4}$ to $\frac{1}{2}$; Wheal Basset, $\frac{5}{16}$ to $\frac{1}{2}$; Wheal Grenville, $\frac{1}{4}$ to $\frac{1}{2}$; Wheal Kitty, $\frac{3}{16}$ to $\frac{1}{2}$; Wheal Pevor, $\frac{3}{16}$ to $\frac{1}{2}$.

—Mr. JOHN CARTER, mine sharedealer, Camborne, writes under date October 29:—The Cornish Share Market is steady, but without much alteration to notice. New Kittys have advanced. Closing prices are annexed:—Blue Hills, $\frac{3}{4}$ to $\frac{1}{2}$; Carn Brea, $\frac{2}{3}$ to $\frac{1}{2}$; Cook's Kitchen, $\frac{9}{16}$ to $\frac{1}{2}$; Dolcoath, $\frac{7}{16}$ to $\frac{1}{2}$; East Blue Hills, $\frac{1}{4}$ to $\frac{1}{2}$; East Pool, $\frac{4}{16}$ to $\frac{1}{2}$; Killfretre, $\frac{1}{8}$ to $\frac{1}{2}$; Marke Valley, $\frac{2}{16}$ to $\frac{1}{2}$; New Kitty, $\frac{1}{4}$ to $\frac{1}{2}$; New South Consols, $\frac{1}{4}$ to $\frac{1}{2}$; Pedn-an-drea, $\frac{1}{4}$ to $\frac{1}{2}$; Prince of Wales, $\frac{5}{16}$ to $\frac{1}{2}$; South Consols, $\frac{2}{16}$ to $\frac{1}{2}$; South Crofty, $\frac{5}{16}$ to $\frac{1}{2}$; South Wheal Frances, $\frac{7}{16}$ to $\frac{1}{2}$; Tincroft, $\frac{5}{16}$ to $\frac{1}{2}$; Trevaunance, $\frac{2}{16}$ to $\frac{1}{2}$; West Basset, $\frac{2}{16}$ to $\frac{1}{2}$; West Frances, $\frac{7}{16}$ to $\frac{1}{2}$; West Kitty, $\frac{7}{16}$ to $\frac{1}{2}$; West Phoenix, $\frac{3}{16}$ to $\frac{1}{2}$; West Seton, $\frac{4}{16}$ to $\frac{1}{2}$; Wheal Agar, $\frac{1}{4}$ to $\frac{1}{2}$; Wheal Basset, $\frac{5}{16}$ to $\frac{1}{2}$; Wheal Grenville, $\frac{1}{4}$ to $\frac{1}{2}$; Wheal Kitty, $\frac{3}{16}$ to $\frac{1}{2}$; Wheal Pevor, $\frac{3}{16}$ to $\frac{1}{2}$.

MANCHESTER.—Messrs. JOSEPH R. and W. P. BAINES, stock and share brokers, Queen's Chambers, Market-street, write under date, October 29:—Business in home railway stocks has been recorded to but a moderate extent here, and prices that have been realised mark no special feature. The Continental questions seem to have lost much of their influence on English stocks, it apparently being considered that the difficulty is not likely to assume such proportions as that England will need to be seriously, if at all, entangled. Indeed, during the past few days, notwithstanding rumours of "invasion," pacific hopes have become more paramount, and the result of this feeling is seen in the values of Foreign Government Loans, &c., which mark an almost all-round advance, though, with the exception of Argentine Hard Dollar Bonds, and Brazilian (1875) Bonds, which have risen 2 and 1 respectively, and one or two others, the advance is not very noteworthy in any instance. Egyptian United are 1 to $\frac{1}{4}$; ditto Preference, $\frac{1}{4}$; and ditto Dalra Sanieh, $\frac{1}{4}$; Italian Five per Cent. (1881), $\frac{1}{4}$; Mexican Three per Cent. (1881), $\frac{1}{4}$; Peruvian Five per Cent. (1872), $\frac{1}{4}$; ditto Six per Cent. (1870), $\frac{1}{4}$; Portuguese, $\frac{1}{4}$; and Russian Five per Cent. (1873), $\frac{1}{4}$. Against these advances Spanish quote $\frac{1}{4}$ lower, and sellers' price of Turkish (Group 4) is down $\frac{1}{4}$. Consols are unaltered at 104 to 105. India Four Cent (1888) are $\frac{1}{4}$ better. In Colonials some falling off in values is to be noticed, the decline being unaccompanied by any movements in an upward direction. Lower: New South Wales Four per Cent. Inscribed 1; New Zealand Five per Cent. Consols 1; and Cape of Good Hope Five per Cent. 10-40's, $\frac{1}{4}$. Home Corporation Stocks &c., are irregular, with rather more business than of late. Higher: Bradford Four per Cent., $\frac{1}{4}$ to $\frac{1}{2}$; Burnley, Three and a Half per Cent., $\frac{1}{4}$ to $\frac{1}{2}$. Lower: Manchester Four per Cent., $\frac{1}{4}$; Liverpool Three and a Half per Cent., $\frac{1}{4}$. A fair aggregate of transactions (bearing in mind the fortnightly settlement) is reported in the miscellaneous markets, and most departments have participated in the business passing.

BANKS have a moderate record of dealings, and whilst changes in values are pretty well balanced between higher and lower, the individual movements are very small in extent, in no case ranging over $\frac{1}{4}$.

INSURANCE shares are very neglected as regards dealings, but quotations exhibit a large majority of favourable movement.

COAL, IRON, &c., AND MINING shares still rule very slow, and there are some distinctly lower prices quoted, though the cases of severe change are not numerous. United States Rolling Stock shares mark a distinct gain in price in sympathy doubtless with the recent spring in American rails.

COTTONS, &c., shares, under the influence of disappointment of hopes of brisk revival on resumption of work, coupled with the by-no-means encouraging prospects in the yarn market, continue to ease, sellers being far easier to deal with than they were when we last wrote.

TELEGRAPHIC Irregular, Anglo deferred $\frac{1}{4}$, and Direct $\frac{1}{4}$ up. Anglo Preference $\frac{1}{4}$, and Eastern $\frac{1}{4}$ lower.

TELEPHONES.—Moderate business passing, but no change in values.

MISCELLANEOUS.—Bridgewater Navigation have further advanced, as also have Hudson's Bay. Miller's Safe also quote turn better. Suez Canal are $\frac{1}{4}$, and Gas Light and Coke A Ordinary 1 lower.

RAILWAYS, with no great amount of business doing, have fluctuated very slightly, balance of movement on the week, excepting in the Metropolitan and District stocks and one or two others, very small indeed.—Canadians: Trunks trifle better on balance in most issues, but are much below best points of the week; traffic, total decrease 51785. American better for the most part, though the movements are capricious. To-day Erie Second and Ohio Mortgages have gone heavy on proposal to give up the lease. Mexican Rail, after going stronger, have relapsed in bad traffic (50000), decrease, and close to day is about lowest of the week, First Preference 80 to 85, Second Preference 28 to 38.

SCOTCH MINING AND INDUSTRIAL COMPANIES SHARE MARKETS.

STIRLING.—Mr. J. GRANT MACLEAN, stockbroker and ironbroker, under date October 29 writes:—During the past week the market has been quiet, but prices are steady. There is no alteration in the state of trade; but political matters in the south-east of Europe are still peaceful. The money market is firmer. The fortnightly settlement has been concluded to-day. Transactions entered will be for new account, November 13.

In shares of coal, iron, and steel companies prices do not show much alteration. Bull's Iron are at 6s. to 7s.; Ebbw Vale, 9s. 3d.; Steel Company of Scotland, 7 to 7½; Vancouver, 6s. to 7s.; and West Cumberland, 6s. to 6½.

In shares of foreign copper concerns prices are easier. Tharsis improved to 94, but are now about 82½; Brastars, 2s. to 10s.; Mason and Barry, 7½; Rio Tinto, 9½; Toconilla, 1s. 3d. to 2s. 6d.

In shares of home mines business has been quiet, but prices are in some cases better. The last sale of the Glasgow Caradon shows a considerable improvement. Great Laxey, 8½ to 9½; Great Holway, 1s. to 12s.; New Kitty, 3s. to 4s.; North Trekerby, 11s.; Parys, 5d. to 6d.; and Van, 3s. to 3½.

In shares of gold and silver mines a fair amount of business has been done. Montanans have improved from 4s. 6d. to 4s. 8d.; a new manager has been appointed on the mine, who is expected to improve the profits. Kibbinoor and Tecoma Debenures offered. Akankoo are at 2s. 6d.; Almaden, 2s. 6d. to 3s. 6d.; Apollonia, 11s.; Baika (new), 2s. 6d. to 3s. 6d.; Cankim Bamoo, 1s. 3d.; California, 2s. 6d. to 3s. 6d.; Devala Moya, 3s. 6d. to 4s. 6d.; Glenrock, 5s. 6d. to 6s. 6d.; Hoover Hill, 7s. 6d. to 8s. 6d.; Indian Consolidated, 6s. 6d. to 7s. 6d.; Lisbon-Berlyn (old), 7d.; Kibbinoor, 1s. 6d. to 2s. 6d.; Mackay and Revolution, 2s. 6d. to 3s. 6d.; Nuddydroog, 12s. to 14s.; Nine Reefs, 2s. 6d. to 3s. 6d.; New Chile, 2s. to 3s.; Oregum, 6s. 6d. to 7s. 6d.; Osmora, 5s. 6d. to 6s. 6d.; Tecoma, 1s. 3d.; Victoria, 1s. 6d. to 2s. 6d.; and Violeta, 22s. 6d. to 25s.

In shares of local and miscellaneous companies prices are steady. Oil companies shares firm, owing to the rise in American Petroleum. Lanark Oil, however, has declined to 45s. 6d. Home Mines Trust, 13s. to 14s.; Lawes' Chemicals, 4½ to 5; Nobel's Explosives, 15½ to 15¾; and Phospho Guano, 50s.

EDINBURGH.—Messrs. THOMAS MILLER and SONS, stock and share brokers, Princes-street, write under date October 28:—Home railway ordinary stocks have generally fallen since last Wednesday, the decline being about $\frac{1}{2}$ per cent. There has been little change in the prices of preferred, guaranteed, and debenture stocks. Canadians have been buoyant, and they show a rise of 3-16ths to $\frac{1}{2}$ per cent. Americans for the most part show a decline from the comparatively high prices they had reached, but Erie Second Bonds show a considerable further rise. National Bank has receded 20s. to 30s. North British and Mercantile Insurance have risen from 32½ to 32 15-16ths. Life Association from 31½ to 33. Liverpool and London and Globe from 27 to 27½. English and Scottish Law from 6 3-16ths to 6½. Scottish Union A have receded from 57s. to 56s. 6d. Colonial Investment Agency shares have risen from 21s. to 24s. 6d., Ceylon

Estates from 17s. 6d. to 22s. 6d., Scottish Trust and Loan of Ceylon from 15s. to 30s. Prairie Cattle shares have improved from 86s. 6d. to 90s. 6d., Swan Land and Cattle from 5½ to 5 13-16ths. Broxburn Oil have declined from 24½ to 24, Burntisland from 18½ to 17½. Youngs from 11 5-16th to 11½. Lanark from 49s. 3d. to 46s. 6d. Assets shares have risen from 5½ to 5¾. Distillers have fallen from 14 13-16ths to 14½. Arizona Trust shares, 1½ paid, have changed hands at 1s. 6d., and the 3½ paid shares have been offered at 25s. Boson Oil 10½ paid warrants have been wanted at 7½ and been offered at 8½, and the 8½ paid shares have been wanted at 5½ and offered at 5¾.

Colonial Mining Notes.

VERY satisfactory reports are given of the various mining districts, the Creswick gold field progressing rapidly with splendid prospects.

SANDHURST.—The gold return for the week ending September 5 is 6600 ozs. To this the United Devonshire contributed the excellent yield of 1433 ozs. 10 dwts., obtained from 750 tons of quartz. Garden Gully United followed with the good returns of 945 ozs.—44 other companies were represented on the list. The dividends declared amounted to 12,276½ l.

THE Ballarat mines produced 1777 ozs. 4 dwts., and the Creswick mines 1974 ozs. 13 dwts.; the Band and Albion Consols yielding 233 ozs. 11 dwts.; Lone Hand Company, 488 ozs.; and Madame Berry Company, 513 ozs. 13 dwts. of gold.

MALDON.—The mines continue to yield well. Mr. Oswald has washed off 227 tons from the Parkin's Reef Mine for a yield of 265 ozs. 17 dwts. 6 grs. of gold. The New Bee Hive washed off 90 tons for 104 ozs. 5 dwts. of gold.

GORDON.—Esmond and Jones's new discovery is attracting much attention amongst miners and speculators. If the quartz turns out as good as reported a new field for mining will be opened.

BERRY CONSOLS, Creswick, have bottomed their shaft after experiencing great difficulty in sinking through the drift sand, 392 ft. deep.

HEPBURN ESTATE (Leasehold).—Shaft sinking progressing satisfactorily; depth 392 ft., and is expected to bottom at about 400 ft. This company stands well with the gatters proved running through the estate (1400 acres) by boring. For pumping the water expected to be met with in the deep ground the company have erected a powerful beam engine, 70 inch cylinder.

THE Lone Hand Company's balance-sheet for the half-year shows very satisfactory results; the yield of gold being for that time 65,344 l. 15s. 3d., out of which dividends were paid amounting to 36,000 l., or 3½ per share on 12,000 shares.

QUEENSLAND.

COAL has been discovered on the Logan river about 15 miles from Brisbane. A seam 8 ft. thick has been traced for a distance of more than 100 yards. On being tested the coal was found of excellent quality.

SOUTH AUSTRALIA.

ADELAIDE.—Rich stone has been struck in the New Era Gold Mine, Woodside, the find being further north than previous discoveries, thus lengthening the payable reef by about 60 ft.

NEW SOUTH WALES.

SILVERTON.—The Barrier Ranges Silver Mining Association's smelter had been running 18 days, during which 293 tons of Day Dream ore, chiefly seconds, had been reduced for a total of 62 tons silver-lead bullion, which from careful assay of each pig contains no less than 27,682 ozs. of refined silver.

ONE of the most noteworthy facts of the week (September 5) has been the discovery of rich chloride of silver in the Lubra Mine at 220 ft. on the underlie.

A late find shows the extent of the Broken Hill line in a block 4 miles east of the Middle Pinnacle; the vein is opened to 2 ft. 6 in. wide, and the lodestuff assays as high as 189 ozs. of silver per ton.

THE number of tons of coal exported to foreign ports from the Port of Newcastle during the six months from 1st January to 30th June was 791,636 tons, being an excess of 35,579 tons over the quantity in the corresponding period of 1884.

A powerful syndicate has purchased all the principal hotels, stores, and other places of business in the town of Mitchell, at the Sunny Corner silver field. They look upon Mitchell as the coming Ballarat of New South Wales.

TASMANIA.

THE Ministry have promised to place 5000 l. on the estimates to encourage deep sinking for gold in accordance with the Victorian system.

THE Government intend spending 600,000 l. on public works for the year, of which 331,800 l. are to be devoted to railways, 270,000 l. being set down for the construction and equipping of four new lines 66 miles in length.

VICTORIA.

CLUNES.—In the South Clunes United Mine a rich run of stone, taken from a winze sinking on the lode in the Lothair 24 tons, gave an average of over 2 ozs. to the ton. The poorest of the stone taken from the lode where this was obtained gives 10 dwts. per ton. The New North Clunes Company crushed for the fortnight, September 12, 423 tons of quartz for 192 ozs. 12 dwts. 12 grs., averaging 9 dwts. 1 gr. per ton.

WALLALLA.—The Long Tunnel Extended Company washed up from 1009 tons of stone for 625 ozs. 5 dwts. of gold.

A Wolverhampton correspondent writes:—There is a report this week that one of the largest galvanised sheet-iron firms, who are closely connected with this district, has received instructions from one large importing firm in Australia to consign out 1000 tons of corrugated sheets per month under this contract alone. The report is likely to be correct, but cannot at present be vouched for. It is known, however, that the makers of galvanised sheets keep very busy, and that they are sending out heavy consignments to the colonies, as well as considerable shipments under actual orders. The proposed imposition of a 30s. per ton duty on plain galvanised sheets by the Government of South Australia will not, it is now believed, materially check business, as the colonists must have the iron, and the tariff is imposed more for revenue than for protective purposes. Current prices are named at 11½ to 12½ l. o.b. Liverpool for corrugated descriptions. Black sheets at 24 w.g. are 6½ l. 15s. to 7½ l., and 27½ l. 17s. 6d. In the bar trade most business is doing at 5½ l. 10s. to 6½ l. Superior qualities are quoted 6½ l. 10s. to 7½ l. 10s. It has just transpired that the three blast-furnaces at the Old Park Ironworks, Wellington, which, together with the other property of the Old Park Company, have lately been purchased by the Chairman of the Haybridge Iron Company, has been resold to the Cwm Avon Iron Company (Wales), who are now removing the furnaces and plant to their own works.

WATSON BROTHERS MINING CIRCULAR.

WATSON BROTHERS,
MINEOWNERS, STOCK AND SHARE DEALERS, &c.,
1, ST. MICHAEL'S ALLEY, CORNHILL, LONDON.

Captain Nance was sent specially to Wheal Crebor to report on the bottom level—the 156—which so far has disappointed expectations. One of the richest courses of ore in the mine was gone over for some distance in the 144, and continued down in a winze for a few fathoms till the water stopped it, yet nothing has been seen of it in thus far driving the 156; hence the disappointment and the low price of shares. Captain Nance says that from the 90 down to the 156, the present bottom, the lode has been very productive; but throughout there has also been one remarkable feature, that it has often suddenly changed from rich to poor, and vice versa. There is, therefore, no cause, he says, for alarm at the temporary falling off in the bottom level. The lode there is not yet cut through, and its value is consequently not known, and he recommends the extension of the 156 east and west, and the sinking of the engine-shaft to another level as quickly as possible, also the extension of the 108 east and west in a pioneer level. One great bunch of ore, known as Goldworthy's, is still ahead at the 156, and ought shortly to be met with. Of course the price of copper is militating much against the mine, and it is now very little more than paying costs; but there are in it good chances for improvement and discovery, and shareholders should not be disheartened. We all remember the great rise in shares consequent on the discovery of Andrew's bunch, when in a few months they rose from 1s. 6d. to 13½. We may never see such times again; but there is room for a good rise if the 156 suddenly touches ore, and at a strike of the pick may again change the fortune of the mine. It will be seen that last week the mine sold 514 tons of ore of good quality for 1072½ l. 3s.—ore that a short time ago would have brought nearer 2000 l.; the whole lot, we believe, averaged over 6½ per cent.

Prince of Wales obtained the highest price at the sale, 16 tons bringing 4½ l. 14s. 6d. per ton, and 1 ton precipitate 20½ l. 10s.

We do not apprehend any call at Prince Royal for eight or nine months at least. A winze will be sunk on the lode from the bottom of the adit, and it is hoped it may be got down 6 or 7 fms. without being troubled with water, and if the lode improves in depth, as there is every prospect, a shaft can be run down from surface, and 20 or 30 fms. sunk by a portable engine. This is how we opened East Blue Hills at first, and it is the same lode in Prince Royal, and equally promising in the adit.

The shaft at East Blue Hills is now down 8 fms. below the 20, and will be down 10 fms. in about five weeks. The agent has wished to sink it 12 fms. before driving again, which accounts for the discrepancy referred to. Our remarks previously referred to 10 fms. as having to be done in about two months. The mine is looking as well as ever, and we hope at once to make good profits, even before the new engine and stamps are erected.

Being in the neighbourhood we asked Captain Nance to visit Metal and Flow, as he had never seen it. On the 22nd he wrote us—"I inspected the Metal and Flow yesterday, and am highly pleased with both; a few good pulverisers will make dividends at once. The lode (Metal) is a very large one, and in every respect very congenial for tin." Since then he has entered more into detail. The mine (Metal) is situated, he says, near, and adjoining Great Wheal Vor, which at one time produced 200 tons of tin per month. The Metal lode was parallel to this, and 250 fms. south, and produced in the old company 500,000 l. of tin in the eastern part of the sett, and between two cross-courses. At the time this mine stopped it was returning 25 tons of tin a month, but tin was only at 30 l. per ton, coals were dear, and there were eight steam-engines to support. The Metal and Flow operation, so far as mining is concerned, is opening the lode a little to the west of the old workings, the geological position being precisely the same as where the rich deposits of tin were found. The lode in the bottom of the shaft, about 10 fms. below the adit, has been cut into 24 ft. wide, and no foot or hanging wall. It contains a little tin disseminated throughout, and composed of the matrix which accompanies the best deposits of tin in the district, and I conclude from this that the sinking of the shaft will be attended with very satisfactory results.

The Flow, of which he wrote as above, only requires pulverisers to make good dividends, and Captain Nance estimates there is an immense quantity, and more than can be taken away in 20 years. "On the whole," he concludes, "I consider your prospects exceptionally good, and the mine situation in the best tin district in the county."

We may give some particulars of the Weardale Mines ere long. They are returning 200 tons of lead per month (they smelt their own ores), and are making a profit.

Other matters referred to by correspondents also stand over till next week.

TREATMENT OF AUSTRALIAN SILVER ORES.—New South Wales presents a magnificent chance for those who understand the proper treatment of silver ores, large quantities being sent almost every week to English and German ports, in consequence of the absence of proper means of treatment in the colony, except at one or two places. The New South Wales Inspector of Mines, referring to this, says:—"Notwithstanding the great strides New South Wales has made in the silver-mining industry during the year 1884, she has still a great deal to learn in cheapening the raising and reduction of silver ores. In America the ore can be raised and treated and the silver refined far cheaper than has yet been accomplished in New South Wales, as can be seen by the following items compiled from recent statistics on the American silver mines:—The Comstock Mine, which employs 4000 miners, raised 330,000 tons of silver ore, valued at \$45 per ton, or \$14,850,000; cost of raising and constructing and refining, \$30 per ton, \$9,900,000; profit, \$4,950,000. The Santo Rita Mine raised 165,000 tons, valued at \$100 per ton, or a total value of \$16,500,000; cost of raising and treatment, \$7-50 per ton, \$1,236,500; leaving a profit of \$15,263,500. There is no reason to suppose that we in New South Wales should not be able to raise and treat our silver ores as economically and effectively as our American friends are doing in America. We have everything in our favour; coal and other requisites in abundance, and railways within easy reach. Our mining community is noted as intelligent, energetic, and persevering; we only require the assistance of scientists we already have in our midst, and the necessary capital to carry their theories into practical results, to cope with difficulties of whatever magnitude which may present itself in the economical and effective working, treating and refining of our silver ores. Considering the apparently inexhaustible character of the New South Wales silver deposits, rivaling in richness those of South America, the above remarks deserve the attention of practical men."

DELTA METAL.—A new industrial use has been found for delta metal, which is the latest addition to the rather large family of modern bronzes. This metal has special properties, owing to the successful admixture with it of a small proportion of iron. It has for some time past been in use for the general purposes to which bronzes are applied, but recently its inventor, Mr. A. Dick, of 110, Cannon-street, London, has adapted it for making watch cases. Watches are now being made in Geneva with cases of a special kind of delta metal, which has an appearance closely resembling gold. The price will be remarkably low, in fact greatly below that of the cheapest silver watch. The works are of the ordinary metal, but Mr. Dick expects in time to produce even the working parts in delta metal.

THE GOLD AND DIAMOND FIELDS OF SOUTH AFRICA—No. XXVI.

BY THOMAS COLLINGWOOD KITTO, M.R.

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The Lisbon-Berlyn is a property in which it is necessary to have an enormous amount of faith of the kind which transforms infinitesimal seams into enormous gold reefs, and a thin bilious coating of earth into many miles of gigantic gold placers. Such faith may be all right for individuals whose missionary zeal inspires them with a desire to convert the whole of the benighted heathen in a "brace of shakes," and hurry in the millennium before there is a change of Government. But I must say that for my own part—having gained my mining experience in the hard school of practice—I want to see something more ocularily demonstrated. It is a trite saying that "people can easily be wise after the event," but this cannot be laid at my door, because it is well known that from the very outset I have never lost an opportunity of cautioning English investors against having anything to do with the *ignis fatuus* like gold fields of the Transvaal, and now that the inordinate glamour which was cast over the place by the chosen few has passed away, and the unfortunate investors have reviewed the position at their leisure, they must see that my estimate of the Transvaal gold fields was the only correct one. If they did not act on my advice that was no fault of mine; but I shall be amply recompensed if they give me credit for acting *pro bono publico*. The conduct of the Lisbon-Berlyn Company towards their late managers should be a caution to all professional mining men who value their reputation. It will be in the recollection of those who followed the early history of the company that in order to procure the best manager possible (this was made a great deal of at the time) they applied to Professor Thomas Price, of San Francisco, for a competent man, and this, in my opinion, was the most sensible act of the company. Professor Price is the greatest living authority on gold and silver mining, and with a reputation unsurpassed. There is no doubt but what he sent the very best man that could be got, and yet in order to shelter themselves they do not hesitate to damn the reputation of honest managers who for no earthly reason would allow themselves to be tampered with. Whoever else English mine investors may mistrust, they may place implicit confidence in anything said or done by Professor Price. If the managers who were sent out had read the lying reports that had been circulated about the place previous to their leaving England they certainly could not have recognised it when they got there, and it is easy to imagine their disgust at the general deception which had been practised upon them. In referring to this property it is impossible to lose sight of the prospectus which so misled the public in the latter part of 1883, and I shall be obliged to make certain references to it for the purpose of substituting facts for fiction.

The Waterfall (Lisbon-Berlyn) diggings are the smallest and most insignificant of any of the diggings in the Transvaal. Traces of gold were found there long before it was declared a gold field in 1873. The place has been prospected by numerous parties of diggers in succession for about 12 years; sometimes they would find a few ounces of gold, sometimes a few pennyweights, but more frequently only the merest colour, and no person ever found anything payable at the Lisbon-Berlyn until 1880, when a Mr. Davis happened to drop across a small gash vein which contained gold in payable quantities. Mr. Davis was a man of unusual energy and ability; he exercised the most rigid economy, and adopted a mode of working best calculated to obtain the most satisfactory results. On the strength of the gold found by Mr. Davis two or three other diggers very naturally tried their hands at it, but without any satisfactory result until Messrs. Howse and Cope found a string of payable ore in their claims adjoining Mr. Davis's. The area on the Lisbon-Berlyn property in which there is any chance of finding payable gold consists of five claims, measuring 300 ft. by 400 ft. each. A very high hill rises on the eastern side of these claims, and slopes rapidly down to the river, which bounds the claims on the west and south. The top waterfall, which is a little above the claims, has a fall of about 250 ft., and the bottom waterfall, at the south-west corner of the claims, has a fall of about 50 ft. The claims being situated on the side of the hill, and sloping rapidly towards the river, renders them peculiarly adapted to the operations of individual diggers with moderate means, by which I mean the means to construct a watercourse, which, from the general character of the formation, is almost the only outlay necessary. It was thought formerly that the farm Lisbon took in all those five claims, but as soon as it was discovered that the British investors had taken the Transvaal bait people began to look after their pegs, and a resurvey of the property cut out Davis's claim altogether; and then, in order to fulfil their agreement with the company, they were compelled to buy the Berlyn farm for any price the owners choose to put on it. This should have opened the eyes of investors at once, because if there was a shadow of truth in the various reports which were concocted at the time one claim more or less could have made no difference.

Before those places were declared public diggings farms could be had almost for the asking, but from 10*l.* to 25*l.* for 8000 or 9000 acres was the top price. After indications of gold had been found certain farms commanded a better price, in the hope that they might be required some day for a township, and also that if payable gold was found on them the owners were entitled to share the license-money with the Government. As I before remarked the farm Lisbon was supposed to contain all the auriferous land at Waterfall—hence it was purchased by a person named Owen for 700*l.* It is said to contain 9000 acres, so that the cost per acre is about 1*s.* 6*d.* My readers will agree with me that for "the richest gold field in the world" the price cannot be considered high, especially as "the richest gold field in the world" has been developing for 10 years. It is generally supposed by English investors that those individuals who sold trumpery Transvaal properties to English companies had been working them themselves for a long time; or where, they naturally ask, did they get the beautiful gold which they made such a display of? As to getting the gold, that was easily purchased at 7*l.* per ounce and upwards; but the individuals who sold their properties to English companies never spent a fraction in any attempt to develop them, and had no right to dig there until the Boer Government confiscated the property of the diggers, as an oblique stab at the British Government, and as a punishment to those who sided with the British during the Boer war.

I cannot understand why practical men could have written such reports as they did about the Lisbon-Berlyn property unless they were most shamefully tricked and imposed upon on the spot. For example, Mr. Steward is made to say in the prospectus—"The ore and slate worked together will average 2*l.* 14*s.* per ton, and that his tests were the lowest 10 ozs. up to 1000 ozs. per ton, and net profits upwards of 19,000,000*l.* sterling." Mr. Webster says—"The quartz reefs vary from 1 to 18 ft. broad for several miles in length, and it is in one of the richest gold properties in the world." Mr. Hamilton places—"the annual profit at the sum of 1,250,000*l.*" "Mr. W. H. Penning entered into a geological history of the ground, and states, from assays made by himself, the average was 3 ozs. 11 dwts. per ton, and this after rejecting all nuggets and visible gold from the ore used." Modest; and not fair to the vendors, Mr. Penning. You should have tested your

samples as you received them; you were no more justified in throwing out gold from the sample than adding it. Thou dost protest too much. Therefore, according to thy own showing, thy estimates are not to be relied on. The truth about the Lisbon-Berlyn property is that figuratively the five claims belonging to Davis, Hampson, and White contain just gold enough to gild a prospectus; but outside those claims there is nothing I would care to prospect if it were in England, instead of being in such a wretched place. Mr. Davis did receive a small compensation for his claim; but neither Hampson nor White received a farthing. They were cruelly robbed of their rights because one of their partners loyally fought on the side of the British during the Boer war. Traitors to England may possibly manufacture other reasons, but I have given the correct one. If the company had not got those claims they could not have sent home any gold; and I doubt, if they had known the facts from the commencement, whether they would have consented to be parties to robbing the diggers of their rights. Of one thing the company may be sure, that by the Government confiscating the diggers' rights they have created so many enemies on the spot that, even if they were to discover gold in paying quantities, it would never find its way to England at a profit. I have referred above to the possibility of the experts being shamefully tricked and imposed upon in their early examination of the Waterfall property; and, as the actual results are so ridiculously out of proportion to the reports, I think it is highly probable that they were. If my suspicions are correct they have my entire sympathy, because I have found after a long experience that it is almost impossible in some instances to guard against trickery. The geological formation at Waterfall in which gold is found is clay-slate, which is lying in its original position. In consequence of the deepening of the river channel a portion of the formation has a slight leaning in the direction of the river, the result being that about midway between the river and the top of the hill several small cracks or gashes were formed which have since been filled in by infiltration, and now form the small auriferous gash veins, the nice bits of gold from which have caused such silly excitement. I cannot help contrasting the difference between gold mining in the Transvaal and gold mining in Brazil. There is more noise and excitement over an ounce of gold from the Transvaal than over a ton of gold from Brazil, as those lucky and shrewd men can testify who participated in the many tons of beautiful gold sent to London by the Imperial Brazilian Mining Association, or those equally fortunate gentlemen who for over 40 years have received their fat dividends from the scores of tons of gold sent to this country from the St. John del Rey Mines. These gentlemen pocket their honest dividends, and make no fuss about it; but a dividend from the Transvaal would be the greatest surprise that could happen to those who promise them.

THE GOLD MINES OF THE GOLD COAST, WEST AFRICA.

Although a very long period has elapsed since the riches of this portion of the West African coast have been known to Europeans, yet it is only within the last few years that the nature of its auriferous formations has been at all understood. Even at the present day our knowledge of them is exceedingly imperfect, their thorough exploration being much impeded by climatic and physiographic influences. In a country, of which the greater part of the surface consists of miasmatic swamps overgrown with dense mangrove forests, and the whole of which is rendered impenetrable by the luxuriance of the vegetation that covers it, geological and geographical studies are rendered all but impossible, whilst the absence of any elevated mountains prevents the traveller from obtaining a clear idea of even the general surface configuration. These causes, too, must serve as the excuse for the unavoidable inaccuracies in the following description of the auriferous deposits of the Gold Coast. To begin with the physiography of this region, always the most important point for the miner, and above all for the gold miner, to consider: the surface of the country presents a series of flat and very often swampy plains, copiously watered by rivers and streams, and intersected by chains of hills of no great height, but gradually increasing in elevation as we recede from the sea-coast towards the interior, the said chains of hills being, very roughly, parallel to the average trend of the coast. Having regard to the large annual rainfall (about 60 in.) to the exceeding softness of the rocks, and the great sinuosities of the river, as well as to the general surface contour, no geologist can doubt but that we have here a well marked example of a low plateau, from which hills have been produced simply by subaerial denudation, the harder portions having resisted the influence of the aqueous action which has worn the softer parts into hollows and valleys. In many, perhaps in most cases, the hills owe their existence to a quartz reef which they enclose, and which has formed the backbone, so to speak, of the hill; a confirmation of this theory may be found in the fact that the northern slope of the hills is usually far steeper than the southern, the enclosed reef dipping to the south. The country rock is in most cases a non-stratified and but slightly indurated clay rock, resting upon soft blue slates, at times schistose; but in the present imperfect state of our geological knowledge of this region this statement must be regarded as conjectural rather than conclusive. The writer has never himself seen a single fossil that might aid in fixing the geological epoch of this formation, nor has he ever heard of such having been found, and is disposed to regard it as modern, geologically speaking. Round the bases of these low hillocks, and covering some of the more elevated plains are deposits (unconformable) of non-consolidated gravels which are occasionally auriferous. These have been, and are still worked to some extent by the natives, especially on the banks of the smaller streams, tributaries of the river Ancobra, which intersects and forms the main highway of communication between the various gold mining concessions and the Coast. Hitherto, however, none of these auriferous deposits have been found to be sufficiently rich to repay the attention which various European explorers have directed towards them, though there is no reason why such should not in the future be discovered, especially towards the interior. The main wealth of the region lies, however, in its deposits of gold quartz, which have been, and are now being, worked by various mining companies. For the purpose of the present article these deposits may be classified under three distinct heads:—

1.—Quartz reefs furthest from the coast (50 to 100 miles inland). These appear to be true reefs, and their outcrops have in some cases been traced for long distances. The country rock is often slate, and the veinstuff is a hard, dense, saccharoidal quartz mostly of a pure white colour, rarely stained yellow by a little hydrated oxide of iron. This quartz is remarkable for the almost entire absence of any sulphurets or other minerals, such as are so often the concomitants of gold in quartz. The gold itself is excessively fine, being very rarely visible to the eye, but has the advantage of being very free, and, therefore, lends itself with the greatest ease to the simplest forms of battery amalgamation. In fact, parcels of this quartz, yielding over 4 ozs. of gold to the ton of quartz by actual working, have been milled, and practically the whole of the gold extracted by what is known as "inside battery amalgamation"—i.e., by charging mercury directly into the stamp cofers, a short copper table having sufficed to catch all the amalgam that escaped from the battery.

The tailings that were produced by this simple treatment yielded by fire assay only traces of gold. This single fact will, of itself, serve to show to anyone at all acquainted with the metallurgy of gold that the precious metal occurs in this quartz under conditions the most favourable to its complete and economical extraction. Very little is at yet known definitely about these reefs, their long distance from the seaboard and the consequent difficulties of transport having hitherto greatly retarded their development.

2.—The second class of auriferous deposits (about 50 miles from the coast) consists of a series apparently of fissures, which have been filled in by a conglomerate (or breccia) of gold, quartz, and other minerals. In some parts the whole of the filling material is pure quartz; in others it shows pebbles of slate and shale, &c.; the gold here occurs chiefly in the finely comminuted material surrounding and cementing the pebbles, but, to some extent also, in the quartz pebbles themselves. It may be noted that the entire mass is usually firmly cemented and very hard, and has to be passed through the mill as though it were a true quartz reef; indeed these deposits are often spoken of as "reefs." A noteworthy point is that, though practically free from sulphurets, these deposits contain much titaniferous iron ore; it is, nevertheless, in the highest degree probable that they are derived from the degradation of the quartz reefs already described, the character of both the quartz and the gold contained in it being essentially similar in both. The process of milling already alluded to—amalgamation inside the battery—together with amalgamated copper tables outside and inside it, is probably the one best suited to, and the only one really needed for, the extraction of the gold from this quartz. The gold is, as in the quartz reef, very free and readily amalgamable, but its extraction is rendered somewhat more troublesome by the excessive fineness of the gold, owing probably to the manner in which the deposit has been produced, and to the large amount of titaniferous iron ore present, which is apt to settle upon and to clog the amalgamated copper tables.

3.—The third class of auriferous deposits, nearer still to the coast, consists again of true quartz reefs, differing, however, widely in character from those first described. The country rock here is a non-stratified variegated clayrock; the quartz is of a bluish colour, rather vitreous lustre, and contains in addition to the gold numerous associated minerals, all, however, in small quantities. The most important of these minerals are titaniferous iron ore, galena, zinc blende, iron pyrites, copper pyrites, covellite, &c. Whilst the presence of these minerals is most interesting from a scientific point of view, practically they have hitherto been found to be of little or no importance, on account of their occurring in such very small proportions. Still more interesting, mineralogically, is the occurrence, throughout the reef, but by far most abundantly on the walls, of large masses of tourmaline rock, consisting of an aggregation of microcrystalline acicular crystals of tourmaline, the gold being often associated with, and sometimes even occurring in, the tourmaline. The presence of this mineral suggests the conjecture that these veins of quartz were intruded into the clayrock from below, and that the tourmaline owes its existence to some sort of hydrothermal metamorphism, either the cause of the effect of the intrusion; the deposition of the gold in the reef probably accompanied these chemico-geological changes. The practical interest of these theoretical speculations lies in the point that, supposing this theory to be well founded, there is every probability that the richness of these reefs in gold will be found to increase with the depth; nor are there wanting indications, based upon the results obtained in actual working, that such may prove to be the case. The gold in this class of reefs is quite different to that of the others, inasmuch as it is coarse and often crystalline-granular; it is, however, quite as free and as readily amalgamated as the other, and can be as completely extracted from the quartz by the same simple process of direct battery amalgamation.

It will thus be seen that the gold of the Gold Coast quartz deposits can be efficiently worked by the simplest methods known to the metallurgist, and requires none of the numerous forms of "amalgamators," and "gold-savers," and "extractors" with which the market has within the last few years been flooded, and this fact of the ready amalgamability of the gold is one of great commercial importance in determining the value of the deposits; another fact of at least equal importance is that of these three classes of deposits, the first and last are true reefs, and there is, therefore, no reason why they should not be expected to hold in depth; with regard to the second class of deposits, they have already been definitely proved over a very large area, and certain portions, such as parts of the concessions worked by the Cie des Mines d'Or d'Abosso, and by the Wassau Gold Mining Company (Limited) have been found to be very rich. The disadvantage under which all the Gold Coast mines labour are first and foremost—a most unhealthy climate, which prevents Europeans from staying there for any length of time, and much reduces their working efficiency whilst there; and, secondly, the great difficulty of transport, which increases, of course, in rapid proportion with the distance of the mine from the seaboard. Whilst it is to be hoped that this latter difficulty will gradually be overcome, as, indeed, it might easily be if only the Government of the Gold Coast Colony could be aroused from its normal state of apathy to its own best interests, any material improvement beyond such as may be gained by careful attention to the hygiene of all Europeans employed in the mines is scarcely to be looked for, so that, in fact, it only remains to ascertain what yield of gold per ton of quartz will defray the extra expenses due to climatic and local influences. It is, of course, the financial test alone that will determine the future of the gold fields of West Africa. As is usually the case in opening up all such regions, the pioneers of the movement have been heavy losers, and their disasters have been intensified by the fact, only lately recognised, that the natives have already, by their patient labour in bygone ages, extracted all the rich portions of the reef to a considerable depth (often reaching 90 ft.) below the surface, so that it is only by means of deep shafts, furnished with all the modern mining appliances, that extensive operations, which alone can be profitable, can possibly be conducted. As soon, however, as these reefs have been systematically and scientifically opened up in depth, there are good grounds for hoping that the gold mines of the West Coast of Africa may yet have a prosperous future before them.

The lode at the New Mount Hope Copper Mine, in New South Wales consists of shoots and bunches of rich oxides, carbonates, and grey ores, with only a small percentage of yellow sulphides. These deposits occur in the altered sandstone (Devonian) and belts of iron sandstone formation. At the present time there is no mine in the Colony which produces such interesting geological specimens of copper ores as this. Pieces varying in weight from a few pounds to a ton could be procured, containing all the different carbonates, oxides, and sulphate ores.

HOLLOWAY'S OINTMENT AND PILLS—COUGHS, INFLUENZA.—The soothing properties of these medicaments render them well worthy of trial in all diseases of the respiratory organs. In common colds and influenza the pills, taken internally, and the ointment rubbed over the chest and throat, are exceedingly efficacious. When influenza is epidemic, this treatment is the easiest, safest, and surest. Holloway's pills purify the blood, remove all obstacles to its free circulation through the lungs, relieve the over-gorged air tubes, and render respiration free, without reducing the strength, irritating the nerves, or depressing the spirits; such are the ready means of averting suffering when anyone is afflicted with colds, coughs, bronchitis, and other chest complaints, by which so many persons are seriously and permanently afflicted in most countries.

THE MINES AND REDUCTION WORKS OF BUTTE CITY, MONTANA.—No. III.

BY H. D. PETERS, JUN.

ROASTING IN STALLS.—The stalls used solely at the Parrot smelter are 6 ft. broad by 8 ft. deep; they are inclosed on three sides, and connected with a large culvert at the back, which enters a capacious and lofty chimney. The stalls are built in long double rows back to back to economise material, and although not strengthened with either tie-rods or braces last a good many years if the surfaces of the walls next the ore are kept well protected with a coating of clay mud. At the Parrot smelter they are formed entirely of slag blocks, cast in sand moulds, and weighing about 100 lbs. apiece. The stalls contain about 22 tons of ore, which is dumped into them from a car running on a track over the whole line, and after being covered with fine ore are kindled in front, and then require little or no attention till ready. The amount of wood is only about one-fifth of a cord per stall, or 1-100th of a cord per ton of ore. If more is used a lump of matte of greater or less size will be found near the bottom of the kiln, and the roasting will be imperfect. By the fourth day the large fragments of ore, which are built up to form the front wall of the stall, are removed, and 2 or 3 tons of well-burnt ore can be taken away without injury to the rest, great care being observed not to cut in too far towards the centre or approach too closely the line of fire, which has as yet only extended a short distance into the body of the heap. Each day a similar amount can be removed, and by the twelfth day the kiln is empty. In comparison with heap-roasting these stalls offer the following advantages:—The waste caused by rain and wind and from scattering over the ground is much less. Only about one-eighth the quantity of wood is required to roast an equal amount of ore. The labour is much less, being about as one to two and one-half. Instead of tying up valuable ore for a month or six weeks one can begin to use it on the fifth day, and in a fortnight it is entirely finished. If properly managed there is absolutely no raw ore left over after burning in the stalls, while in heap-roasting there is always a large quantity that must be re-roasted. Even the fine covering and the ragging just below it can be thoroughly burned in stalls if a few baskets of bark or chips are scattered over the coarse ore before the fine covering is thrown on. The sulphurous smoke from stalls is mostly discharged high in the atmosphere through a tall chimney, thus avoiding the dense fumes that come from even the smallest ore heap. I should be glad to enumerate the disadvantages of stall-roasting as compared with burning in heaps, but after a long experience with both methods I have nothing to say on the other side, except that in case one has to deal with an ore carrying a very high percentage of iron pyrites it is easier to prevent matting in heaps than in stalls. To prevent disappointment, in case my testimony should give rise to experiments on the part of metallurgists who desire to escape the drawbacks of heap-roasting, I must particularly insist on the importance of having a strong draft, which of course presupposes a large flue and a chimney of sufficient area and height. For a battery of 30 stalls, arranged in a double row back to back, with a flue extending between the two lines, the main culvert should have an area of at least 4 square feet, while the chimney with a corresponding inside area should be carried to a height of 70 ft. With an insufficient draft the roasting is delayed beyond all belief, and the percentage of sulphur retained in the ore after the completion of the process will be far from satisfactory. In case any considerable amount of matte is formed in the stalls it should be broken into pieces the size of the fist, and when 50 tons or more have been accumulated it should be roasted in heaps in very much the same manner as ore. A few necessary changes, however, must be made. The bed of wood should be thicker than for ore, and the matte pile should never be built more than 4½ ft. high. It should have vents or temporary chimneys (formed by placing a couple of sticks of cordwood in a vertical position) at distances not greater than 6 ft. from each other. Whatever fine stuff is formed in breaking the matte should be thrown on the heap in conjunction with the coarse, to prevent too strong a draft, and the sides of the heap should be well covered with fine roasted ore. A heap of 50 tons prepared in this manner will burn for six days, when the operation of "turning" may be begun, as one burning, or even two, is seldom sufficient for matte, which differs from ore in this respect. It should be turned directly on to another bed of wood, prepared alongside of the original heap, taking care that the lump of molten matte which will always be found at the bottom of the heap is broken into small pieces, and piled directly upon the fresh bed of wood. The second burning will take a week, and may be followed by a third, if it is desirable to remove the sulphur as thoroughly as possible. The cost of each burning may be estimated at 65 cents per ton at present Butte prices of labour and fuel. If it is found profitable this roasted matte may be smelted by itself to produce a superior grade of copper, as the numerous burnings and meltings which it has undergone will have mostly eliminated the arsenic and antimony that it may have contained. As it is essential to add a certain amount of siliceous flux in smelting this material any quartzose slags rich in copper that may be lying about the place will form the most advantageous addition, as the copper produced from them will be of the best possible quality. In most cases the first-class ore forms but a small proportion of the material treated, and we now come to the principal ore from which the immense copper matte product of Butte is derived—the concentrates obtained from the second class ore. These usually contain about 20 per cent. copper, 30 per cent. sulphur, and 10 per cent. silica, the balance being principally iron; and they are thoroughly calcined in long furnaces, heated by wood, worked by two men on 12-hour shifts.

CALCINING FURNACES.—The furnaces which have been built under my supervision are 64 ft. by 16 ft. outside, and have four hearths, each 14 ft. long by 15 ft. wide in the clear. The ore is charged from a hopper upon the hearth furthest from the grate, in quantities of 3600 lbs., and, in spite of the great length of the furnace, it is at a bright red heat in two hours. Without going farther into details I will state that each furnace calcines 11 tons of ore in 24 hours, reducing the percentage of sulphur from 30 to below 4 per cent., and consuming exactly two cords of pine wood. These results are so favourable that the cost of calcination is reduced to about as low a figure as one could hope to attain with a successful mechanical furnace. Care is taken to prevent the formation of sesquioxide of iron, it being almost infusible, and requiring a good deal of time and fuel before the reaction of the sulphides in the charge reduces it to a protoxide and fits it for combining with the silica present. In a blast-furnace, of course, the powerful reducing atmosphere accomplishes this result at once, but in the reverberatory smelting, which we are now discussing, the point mentioned is of sufficient importance to be always borne in mind. The concentrates are discharged through a square hole in the hearth nearest the fireplace into an iron case, and are dumped over a high wall into a paved enclosure convenient to the smelting furnaces.

REVERBERATORIES.—Nearly all the reverberatory furnaces in Butte are constructed after the same model, and differ from the ordinary Welsh furnaces in the following particulars:—The hearth is wider—11 ft. and more; the grate is large, but very shallow, being little lower than the furnace hearth; the bridge is broad and low, and the roof high, so that the space between bridge and roof is much larger than usual; the arch pitches very strongly towards the chimney door, so that the vulcatory is low; but

the trapezoidal hole connecting hearth with flue has an area more than 50 per cent. greater than is the usual custom; the flue is broad and high, and much better results are obtained by expanding it rapidly until it enters the stack; each furnace has its own chimney, about 55 ft. in height, and with a somewhat larger area than the Welsh furnaces. An increase in height is of no advantage. Numerous and continued experiments have proved that the foregoing peculiarities are exactly suited to the fuel in use—a flaming, semi-bituminous coal from Wyoming, which seems only slightly removed from lignite. It is very light, has only a slight tendency to coke, and though ready enough to form massive clinkers if allowed gives far better results when burned in a shallow layer, without the deep clinker bed which forms the chief peculiarity of the Welsh method of firing. With a consumption of 7 tons of this coal in 24 hours 4½ charges of 3½ tons each of ore can be smelted. The slag and cleanings that are returned to the furnace are never counted in the quantity smelted. It is found advantageous to admit an additional supply of air through a series of holes in the roof over the firebridge, and as the best proportioned furnace will flame badly just after throwing a fresh fire, and especially after grating (which should be done thoroughly once in 24 hours), a hole 8 in. square must be left in the stack below the flue, by which sufficient air is admitted to cool the lining when the furnace is flaming. The average charge consists of about 60 per cent. calcined concentrates, 20 per cent. roasted first-class ore, and 20 per cent. raw ore, the screenings of the first-class ore being used for this purpose. Works that possess no concentrator are obliged to use more or less limestone as flux, and I am informed that at few of the smelters is the calcination of the ore sufficiently thorough to admit of the addition of such a large proportion of raw ore as I have indicated. The furnace is tapped after each third or fourth charge, yielding a matte assaying from 60 to 70 per cent. copper, and from 15 to 50 ozs. in silver, according to the grade of ore. I am informed that at most of the works considerable difficulty is experienced in keeping the grade of the matte as uniform as is desired by the parties to whom it is shipped. To show that this uniformity is perfectly attainable, I append a list of successive shipments of about 15 tons each, taken from the books of the furnaces under my charge. I will also state that so far from having uniform material to work with, there varied both in quality and amount almost daily, and the charge seldom remained the same for three successive shifts. The time represented by these shipments was the first 10 days of August, 1884.

Percentage of Copper in Shipments of Matte from the Parrot Works.

No.	Per cent.	No.	Per cent.
1.....	64.7	12.....	63.6
2.....	65.5	13.....	63.4
3.....	64.4	14.....	65.5
4.....	64.6	15.....	63.3
5.....	64.0	16.....	65.5
6.....	63.2	17.....	64.8
7.....	63.1	18.....	64.9
8.....	63.4	19.....	64.0
9.....	63.6	20.....	64.8
10.....	64.9	21.....	64.5
11.....	64.8	22.....	63.2

This list might be almost indefinitely continued.

Contrary to European experience and to the teaching of the principal mining schools of the world, the amount of copper retained in the slag is by no means excessive, considering the very high grade of the matte produced from the first smelting. I cannot answer for all the furnaces in this district, but the slag produced from those with which I am personally familiar seldom exceeds 1.25 per cent., and frequently falls to 0.9 per cent. About one-half the copper contents of the slag is present in an oxidised condition, the remainder being retained as enclosed granules of matte. The plate slag is always returned to the furnace, and all the other pigs are carefully examined and any valuable portions re-smelted. The great proportion of the slag here produced is a mixture of singulo and bisulfates of iron, very little lime or alumina being present, except when the former is added as a flux. At the Parrot Works the slag approaches a singulo-sulfate, while at most of the other furnaces, so far as I can judge by eye, it is considerably more siliceous. The matte is in most cases crushed in a small rock-breaker to the size of a hen's egg, sacked, and shipped, in some cases to the Baltimore or New York refiners, in others to England. On the whole, the reverberatory practice in this district is fairly satisfactory and economical; though, as I have found by experience, constant attention to the size and condition of the furnace flues and other comparatively trifling points is rewarded by results entirely out of proportion to the labour expended. With all varieties of fuel, a constant watchfulness and correction of the ever changing proportions of the more important parts of a reverberatory furnace (such as the bridge, flue, vulcatory, &c.) is demanded, but I have never yet met a variety of coal where the results obtained seem to depend so greatly on these slight and apparently trifling points, nor where the furnaces were so sensitive to minute alterations. I have had a furnace suddenly fall off from bringing its charge in five hours to requiring eight hours for the same operation, and the changing the size of the flue by the addition or removal of an inch of material, again restore the five-hour period. And as such circumstances are the rule and not the exception, it follows that a very little carelessness or inattention on the part of the metallurgist may cause almost unlimited loss to the works. I have particularly emphasised this matter, as I feel certain, from my own observation, that it is not in all cases understood or at least not acted upon. I have endeavoured to make this point still more noticeable by reducing certain results, which have occurred under my own observation, to actual figures. Knowing the exact profit to the company on each pound of copper produced under ordinary circumstances, I have found by calculation that by increasing the area of the flue of a certain furnace by 10 square inches, it produces a greater profit daily of \$57.30, and adding to this the amount of fuel saved by doing good work instead of poor, the total difference amounts to \$68.77. Assuming that six furnaces (the average number in the principal works) have all been built on the same incorrect model, the sum advances to \$412.62 daily, or \$150,606.30 per year. While this state of affairs might not very probably occur, the calculation is far from being a fanciful one, and I hope may forcibly illustrate the immense importance of forcing every smelting furnace to do the best possible work of which it is capable.

REPAIRS.—While I am on the subject of economising in furnace work, I may properly mention the immense waste of money involved in unnecessary delays in making repairs. That frequent and extensive repairs must be made on reverberatory furnaces is an unfortunate fact; but every possible means should be employed to lessen the evil by shortening the time during which the furnace is idle. Every moment of delay adds heavily to the expense, not only in the item of wages, which includes those of the masons, helpers, labourers, and the whole gang of men belonging to that furnace, but still more in the cooling of the walls and bottom, which will take hours of time and tons of fuel to bring back to their normal temperature, delaying for an unreasonable time the next two or three charges, and almost certainly increasing the percentage of copper in the slags. As it is idle to find fault without suggesting the appropriate remedy, I will describe briefly the method that I always employed when making any

of the frequent and comparatively slight repairs that occur every six or eight weeks, and that do not render necessary the complete cooling down of the furnace. I refer to such trifles as building a new flue, putting in a vulcatory or front or side door jams, or patching the lining of the stack. The day before the job is to be done, I carefully examine the extent of the proposed repairs with the furnace mason, a man of experience, with whose assistance I can closely estimate the number of bricks needed, and, what is of much greater importance, the number that require cutting, and the exact size and shape that they must be cut to. Noting all this carefully down, I have an ample supply of bricks cut into the shape that will be needed, and when masons and materials are all ready, skim and tap the furnace as clean as possible, throwing in a fresh charge (if the stoppage is to be only of short duration) to protect the workmen from the heat radiating from the bottom, and begin immediately knocking in with long steel bars the portions of brickwork that are to be renewed, dragging the debris out of the furnace at once with scrapers. The cold charge is especially heaped in that part of the furnace that is to be repaired, and if any portion of the arch is to be rebuilt, it is very easy to form a proper pattern for the purpose by shaping the ore as required. The best and quickest masons should be chosen for this work, and if the job is a very hot one they must be relieved every half-hour. In fact, I have found it sometimes necessary to keep a small stream of water playing on the masons' hands, faces, and feet for an hour at a time. If the brickwork or ore is too hot to stand on, nothing makes a better temporary flooring than old planks soaked in copperas liquor, which will remain cool, and will neither catch fire nor smoke. If the fire has been properly banked without being allowed to get too low, the furnace will be in full heat by the second charge, after a stoppage of two hours for repairs.

SMELTING IN BLAST-FURNACES.—The fifth and last division of the Butte processes includes the smelting of copper ores in blast-furnaces, which is practised only at the Bell smelter, though the new Butte Copper Company proposes to do all its smelting in this manner. I am unable to give accurate details of the Bell furnace. It is a small water-jacket, 36 in. in diameter at the tuyeres, and with a capacity of about 40 tons of charge daily, though the quartzose nature of the ore necessitates a heavy proportion of flux, consisting of an excellent limestone, and a rather poor quality of bog iron ore. When the calcination has been sufficiently thorough, the matte produced will reach 65 per cent. in copper, but this is seldom attained in practice. I judge that the expense of smelting per ton at these works is about the same as at those where reverberatory furnaces are employed, the high price of coke as compared with coal (\$20 to \$9) nearly neutralising the advantages commonly claimed for the blast-furnace. By increasing the number of tons smelted per day, which could easily be done by putting on a heavy blast, and bricking the fine ore, which constitutes the greater part of the charge, and by diminishing or entirely doing away with barren flux, which can also be very easily accomplished by building a concentrator of sufficient capacity, I am firmly convinced that the blast furnace will hold its own here in comparison with the reverberatory, as it does nearly everywhere else in America when properly managed. So long as toy furnaces, with a capacity of 20 to 40 tons daily, are employed, just so long the reverberatory will take the lead. But when metallurgists learn that a furnace of reasonable size, smelting from 80 to 100 tons a day, will not only work with a less cost per ton for both labour and fuel, but it is also far easier to manage, will average much longer campaigns, and will reduce the cost of repairs from 3 to 6 c. for each ton of ore treated, then the reverberatory will remain in its proper place, which is in Swansea, and nowhere else, unless almost similar conditions can be found elsewhere as regards price and quality of coal, fireclay, and labour, and a world's ore market to select from. The only other exception, in my humble opinion, would be where, with good fuel and very rich ore, the charge is necessarily so siliceous that in spite of concentration or fluxes the silica contents of the slag cannot be kept below 45 per cent. The smelting capacity of this district will soon be more than doubled, as the new works of the Anaconda Company, Butte Copper Company, and Clark's Colusa will doubtless be in full operation. It will then be interesting to compare the work done with our present operations, and I feel convinced that the improvements contemplated and partially carried out in the new works just mentioned will more than meet any possible future decline in the price of copper, so that although many of the Arizona mines and a large proportion of the principal copper producers of both Lake Superior and Chili may find it necessary to suspend operations, Butte will still be able to keep every furnace in blast so long as the rich ores, which are still found in undiminished quantities in the lowest workings of the deepest mine, continue. And even if the percentage of the ore diminishes materially, its value in silver (in many cases equaling 3 cents per pound of copper), and the constant cheapening of freight, fuel, materials, and labour, make it probable that Butte's time of prosperity, even if dependent on its copper mines alone, will cover a period of too many years to make it possible to prophesy the time when it will cease to be one of the most important factors of the world's copper market.

COMMERCIAL FAILURES.

The number of failures in England and Wales gazetted during the week ending Saturday, October 24th, was 96. The number in the corresponding week of last year was 69, showing an increase of 27, being a net increase in 1885, to date, of 584.

The failures were distributed amongst the following trades, and, for comparison, we give the number in each in the corresponding weeks in 1883 and 1884:—

	1885.	1884.	1883.
Building trades.....	11	10	21
Chemists and druggists.....	—	—	2
Coal and mining trades.....	—	1	2
Corn, cattle, and seed trades.....	1	1	6
Drapery, silk, and woollen trades.....	10	8	10
Earthenware trades.....	1	1	—
Farmers.....	5	5	8
Furniture and upholstery trades.....	4	2	—
Grocery and provision trades.....	22	9	34
Hardware and metal trades.....	1	2	7
Iron and steel trades.....	2	1	11
Jewellery and fancy trades.....	3	2	5
Leather and coach trades.....	7	8	9
Merchants, brokers, and agents.....	6	6	12
Printing and stationery trades.....	2	—	1
Wine, spirit, and beer trades.....	6	2	23
Miscellaneous.....	15	11	19
Totals for England and Wales.....	96	69	169
Scotland.....	13	16	25
Ireland.....	1	3	5
Totals for United Kingdom.....	115	88	199

The number of Bills of Sale published in England and Wales for the week ending October 24 was 231. The number in the corresponding week of last year was 278, showing a decrease of 47, being a net increase in 1885, to date, of 532. The number published in Ireland for the same week was 27. The number in the corresponding week of last year was 22, showing an increase of 5, being a net increase in 1885, to date, of 50.—*Kemp's Mercantile Gazette.*

THE SUGGESTED TAX ON IMPORTED TIN.

Our appeal to Cornish smelters to give their views on the question of the desirability, or otherwise, of a duty on imported tin. Mr. Daubuz having proposed such a duty, has borne fruit. Last week the *Mining Journal* showed that Mr. W. Bolitho, jun., was against a duty, and that Mr. Barnett, F.G.S., in the employ of the firm of Messrs. Bolitho, and probably giving the views of Mr. T. S. Bolitho, was distinctly opposed to the proposition. Now another gentleman speaks. At Penzance, Mr. T. W. Field, J.P., and tin smelter, has said:—A question has been brought forward and discussed in the public newspapers, the editor of one of which—the *Mining Journal*—asks that an answer should be given to the remarks made, and given by one who has some knowledge of the subject. (Hear, hear.) I will take advantage of that invitation by laying before you some information with reference to a commodity in which we are all more or less, or most of us, interested, directly or indirectly. Statements have been made with reference to Free Trade and Fair Trade as they affect our local industries, and I was rather surprised to see that one assertion was supported by a gentleman who happens to be in the same trade as myself—that of a tin smelter—Mr. Daubuz, of Truro. The statements of Mr. Daubuz had reference to an import duty on foreign tin, and I have prepared here a few figures which I think may be of interest to those who are interested in tin, and which of themselves will show the fallacy of the arguments Mr. Daubuz thought well to adduce. (Hear, hear.) Figures are not interesting as a rule, but I will be as brief as possible, so as not to tire your patience. ("Go on, Sir.") The production of Cornish tin in 1884 was about 15,000 tons of ore, giving about 9000 tons of metal. The exports of English tin in 1884 were 5491 tons of metal, thus leaving for home consumption somewhere about 3500 tons. The imports of foreign tin during that same year were 26,074 tons, and of that a large portion was sent to London for transmission to America; the exact quantity so exported was 14,701 tons, leaving 11,373 tons for home consumption. Bearing upon tin, you know, of course, that tin-plates form a very important item in the consumption of tin. The exports of tin-plates in 1884 were 5,121,000 boxes, of which nearly 4,000,000 boxes were exported to America, and 1,191,285 were exported to other countries. There is no duty on tin in America at the present time. Up to two or three years ago, there was a duty of 10 per cent. upon tin sent from producing countries to London, and there reshipped, but at that time there was no duty on English tin in America, and now there is no duty on tin of any kind. (Applause.) There is also no duty upon tin of any kind in Germany or in Holland, no duty upon English tin in France, nor upon foreign tin imported into France direct from producing countries; but there is a small duty, about 3.75 frs. per 100 kilos., or about 30s. per ton on exported tin. What would be the effect if the tin-plate makers had to pay a duty upon the tin they consume? They would have to advance the price of the plates, to recoup themselves for the duty. The Yankees are quite keen enough, and if they found they had to pay such an increased price as the duty would necessitate, would they not speedily commence to manufacture tin-plates for themselves? We should then lose all the benefit of that enormous trade which is carried on in South Wales, and Cornwall itself would be deprived of the benefits it derives from the very large production of tin-plates in South Wales. (Hear, hear.) But, then, you may ask, "Why do not they use English tin?" Because it is not so suitable for making tin-plates as foreign tin. It is not so fluid, not so soft, and will not cover so large a surface of plate. Of the 9000 tons of Cornish tin produced five-eighths of that quantity is exported, and goes to countries where there is no duty. We could not gain anything by increasing the price of that five-eighths, because it would come into competition with tin that bears no duty, and the increase price we should obtain would be simply making our British manufacturers pay a higher price for that 3500 tons which they consume. The Birmingham and Sheffield trades would suffer, for whilst the manufacturers at those places would have to pay a duty in respect to tin, the manufacturers in Germany and in Belgium would have none to pay. Our foreign trade would speedily become less, and we should have hard work to find customers. This is a matter which is of great importance to the people of this country, and it quite upsets the theory of imposing a tax on foreign tin. (Applause.) I thought it desirable, ladies and gentlemen, to bring this before you, because some of the newspapers have expressed a desire that someone acquainted with the trade should give a reply. (Renewed applause.)

REVIVAL IN CALIFORNIA MINING.

Placer, one of the oldest of the mining counties of the State, has been coming to the front during the last few months with discoveries and developments that are attracting considerable attention among mining men, the more so, perhaps, that the prevailing impression has been not only that Placer county did not contain any mines of consequence, but that it could not. That the great system of buried river channels, blue leads and hydraulic banks that lie on the western slopes of the Sierras, rich in gold from Sierra county on the north, to Tuolumne on the south, either skipped Placer county entirely or were too barren or spotted to justify the investment of capital and working on a large scale. That the great quartz mother lodes and systems, well defined, permanent and rich in the precious metals in Nevada and Sierra counties northward and Amador and Calaveras to the south, did not exist in Placer county; instead, only shallow narrow veins, perhaps an occasional rich pocket, but no great mining properties that could be worked with certainty of return to 1000 ft. and more in depth. That these views are incorrect is now appearing by the irrefutable logic of accomplished facts that cannot be set aside by mere theories, arising from the failures of mismanaged mining enterprises 10 years since. The placers of this country—that is, the deep buried blue gravel leads form a very intricate system, the unity of which over large areas is just beginning to be understood by the miners. Without going into a detailed description of this blue lead system of gravels, it is sufficient to say that the workings of 30 years have practically left untouched the main great gold-bearing channel, to which most of those known and worked already are only tributaries. This great channel was first struck about four years since in the Mountain Gate Mine at Damascus, found to be very rich, but only workable under great disadvantages. It was next found 4 miles to the south in the Turkey Hill Mine 2 miles from Michigan Bluff, the gravel rich in gold, but mined under great difficulties. The third strike and the most important is that in the Mayflower Mine at Forest Hill. In this mine the prospecting work had been directed for this channel, and its discovery was not the result of accident as in the two former noted instances, but of science, faith, persistence, and not less than money. The mining in this mine is very expensive, but the gravel found is wonderfully rich in gold; so much so, that the monthly yield of gold since the last of May, when the strike was made, has averaged over \$50,000. Within the last few days a fourth strike has been made in the Excelsior Mine 1½ mile south of the Mayflower; how extensive sufficient developments have not yet been made to determine. These four discoveries have practically outlined the course of the channel for 15 miles, a greater continuous extent of unworked Placer mining ground having every indication of extreme richness than is possessed by any other mining county in the State. The mining claims in the range of this channel have naturally much appreciated in value under these strikes, and in many of them active work is being done toward reaching the gravels of the golden river. In quartz mining, as in gravel, there is also a revival based on the developments and discoveries of the last few years. Sections of the county in which the ledges have been considered barren of gold have been found to contain some most promising lodes, which are being slowly developed into mines. This is particularly the case with the Last Chance, Bald Mountain, and Emigrant Gap region, where several strong veins of high grade ore have been found and opened during the past summer. In the vicinity of Auburn and Ophir also there is an increased activity, based on legitimate grounds—the discovery of large bodies of milling ore in

several of the largest mines. It should be borne in mind in considering the quartz mines of this county, that the work done is hardly more than prospecting; there are only three shafts down to greater depths than 350 ft., and in the one of these three which could have the most influence on the development of a district—the St. Patrick at Ophir—the mismanagement and stock-jobbery wrecked the mine, and gave the mines of Placer county a setback from which they are just beginning to recover. There is no doubt but that honest management and scientific mining can bring Placer county close to the first in annual gold yield and dividends, instead of the seventh place it at present holds.—*Mining and Scientific Press.*

THE NAVY SHIPBUILDING PROGRAMME.—The amended programme of shipbuilding to be undertaken in Her Majesty's dockyards and by contract in the present financial year has been issued as a Parliamentary paper. The total sum originally proposed in the estimates to be spent upon machinery and shipbuilding by contract in 1885-6 was, according to this return, 1,926,000*l.* To this has to be added 1,014,465*l.* to be spent by contract out of the vote of credit passed subsequently, bringing up the total proposed expenditure for shipbuilding and machinery by contract to 2,940,465*l.*, as compared with 1,940,000*l.* voted in the estimates for 1884-5. Of the extra expenditure out of the vote of credit on shipbuilding work, &c., by contract, it appears that 47,838*l.* is proposed to be spent in the course of the financial year on the building and purchase of 70 steamboats, and 15,000*l.* on boats sent out and replacing others taken from ships for service on the Nile; 445,687*l.* on the building of 40 torpedo boats, 100,000*l.* on torpedo gear proposed to be ordered for 54 first-class torpedo boats, and 21,600*l.* on air-compressing machinery ordered for first-class torpedo boats; 42,000*l.* for fitting merchant steamers as armed cruisers at home and abroad, 109,800*l.* in the purchase of torpedoes at home and abroad, and 62,000*l.* on gun-mountings and torpedo carriages ordered, while various smaller items make up the total of the vote. The proposed extra expenditure for labour out of the vote of credit for hastening the repair and completion of ships and steamboats at the dockyards amounts to 96,800*l.* allocated as follows:—17,500*l.* at Chatham, 5800*l.* at Sheerness, 35,500*l.* at Portsmouth, 30,000*l.* at Devonport, and 8000*l.* at Malta. An additional sum of about 96,800*l.* will be expended out of the vote of credit on the purchase of naval stores for carrying out the extended programme.

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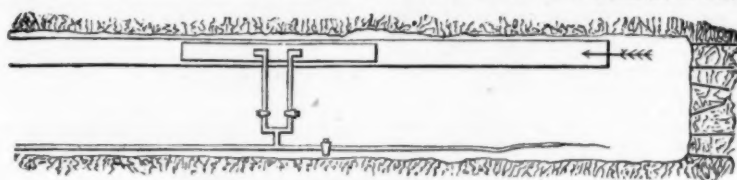
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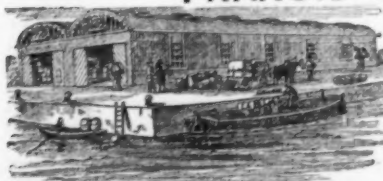
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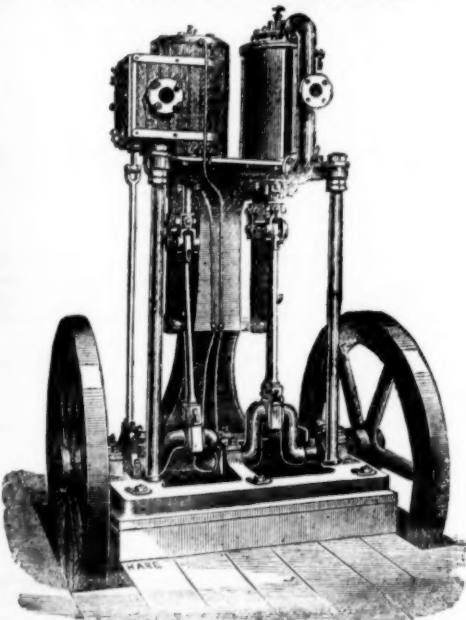
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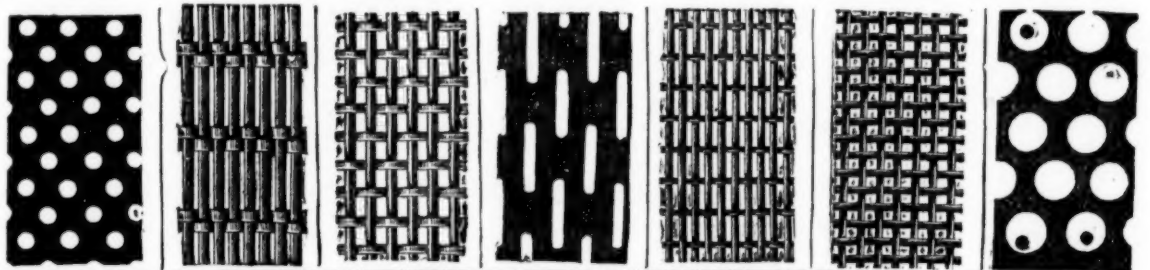
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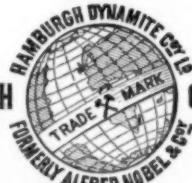
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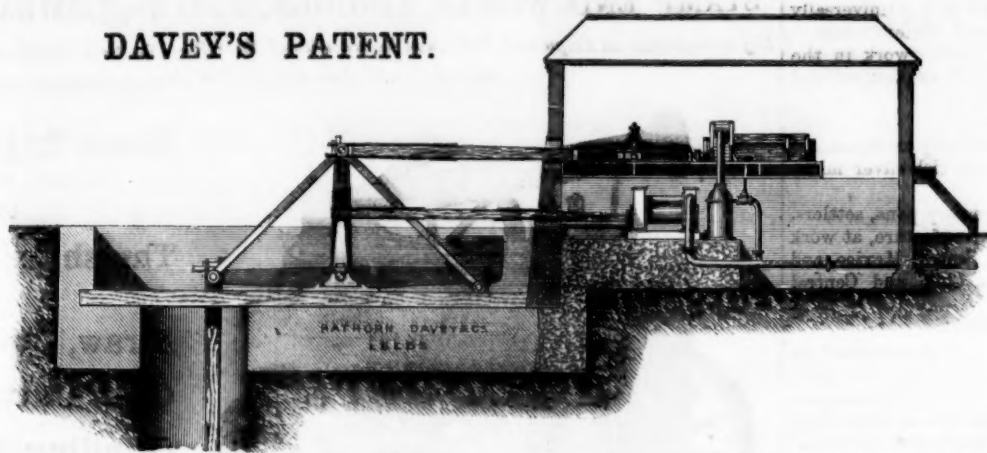
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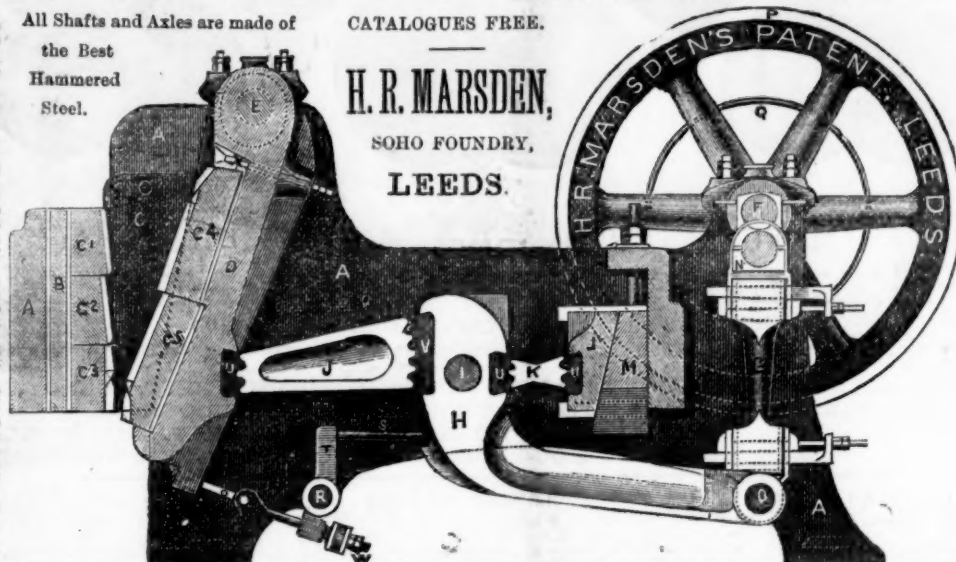
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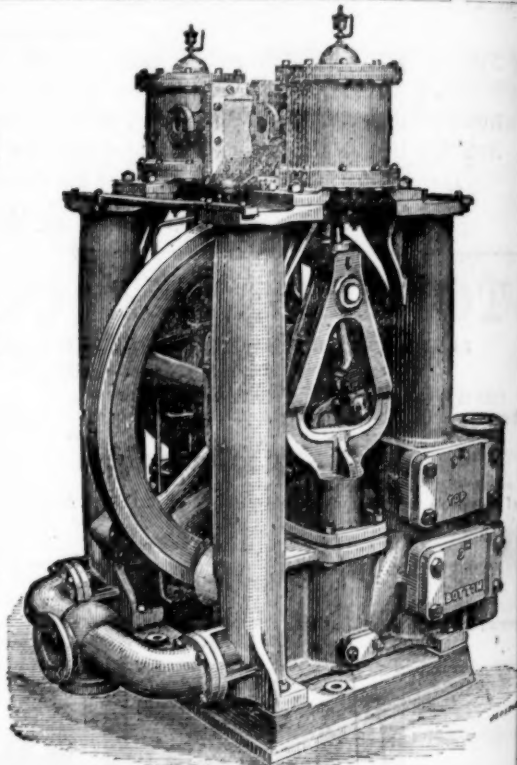
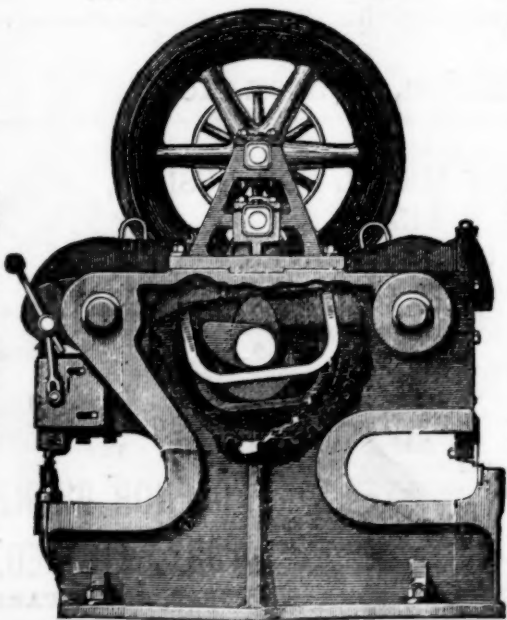
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